

**Mace** Security Products, Inc. Presents:

**Digital Video Recorder** based on Mpeg4 Technology

**16 Channel Models**

## **Operational Manual**



DVR1604RW

**Thanks for purchasing products of Mace Security International, Inc.**

**For your convenience in calling for service or technical support,  
please record the following important information:**

**Model: DVR1604RW**

**Hard Disk: 80G, 120G, 160G, 200G, 300G, or \_\_\_\_\_**

**Serial #:**

**Date Purchased:**

**Sales Person:**

**Company Name:**

**Phone:**

**Fax:**

**Consult Mace's website at <http://www.mace.com> for a complete line  
of surveillance and security products.**

## **General Safety Precautions**

This manual applies to Mace DVR1604RW (16-Channel CD-R Writer)

- 1. Installation Environment**
- 2. Open Product Box and Verify Contents**
- 3. Before Power-up**

## 1. Installation Environment

- **An UPS (Uninterrupted Power Supply) with power surge protection is strongly recommended for DVRs and all associated devices (routers, DSL modems, etc)**
- Avoid extreme heat
- Avoid direct sunlight
- Avoid excessive humidity
- Maintain horizontal mounting
- Avoid excessive vibrations
- Do not stack other devices on top of the DVR
- Operate in well ventilated place, do not block the cooling fan

## 2. Open Product Box and Verify Contents

Check for the following accessories in the accessory box:

- One power cord
- One hard disc Ribbon Cable
- One operation manual
- One CD for utility software (normally it is not needed).
- One remote control unit
- Two AAA batteries for remote control

## 3. Before Power-up

- Make sure the orange tab is set to 110V at the back of the DVR power supply
- Be sure the UPS power supply is properly connected
- Be sure to plug power cord into a reliable 110 VAC power source

## Table Of Contents

|  |    |
|--|----|
| General Safety Precautions .....                     | 3  |
| 1. Installation Environment.....                     | 4  |
| 2. Open Product Box and Verify Contents.....         | 4  |
| 3. Before Power-up.....                              | 4  |
| Chapter 1: Product Specifications and Features ..... | 7  |
| 1. Product Specification .....                       | 8  |
| 2. Product Features .....                            | 9  |
| 3. Storage Matrix .....                              | 11 |
| Chapter 2: Basic System Operations .....             | 12 |
| 1. Start/Stop the DVR .....                          | 13 |
| 2. Recording.....                                    | 14 |
| 3. Alarm Input/Output .....                          | 15 |
| 4. Pan-Tilt Control.....                             | 15 |
| 5. Network Operation.....                            | 15 |
| Chapter 3: Operations from Front Panel .....         | 17 |
| 1. Front Panel Overview.....                         | 18 |
| 2. Detail Key Function .....                         | 19 |
| 3. Enter/Leave the Operation Menu .....              | 21 |
| 4. Maneuver in the Operation Menu .....              | 22 |
| 5. Menu Overview .....                               | 23 |
| 6. Operation Description.....                        | 28 |
| 6.1 Recording Control.....                           | 28 |
| 6.2 Playback.....                                    | 28 |
| 6.3 Pan-Tilt and Zoom Camera Control .....           | 30 |
| 6.4 Menu Detail .....                                | 31 |

|   |    |
|---|----|
| Chapter 4: Operations over Network .....        | 37 |
| 1. Setting Up the Client End .....              | 38 |
| 2. Login and Logout.....                        | 38 |
| 3. Operation of the Right Click Menu Items..... | 40 |
| 4. Record Search and Playback.....              | 43 |
| 5. System Configuration.....                    | 45 |
| 6. Assistant.....                               | 50 |
| Chapter 5: System Connections .....             | 56 |
| 1. DVR Rear View.....                           | 57 |
| 2. RS232 Port Connection .....                  | 58 |
| 3. 10-pin port connection .....                 | 58 |
| 4. RS-485 Port Connection .....                 | 60 |
| Chapter 6: Serial Connection .....              | 62 |
| 1. System Setting .....                         | 63 |
| 2. Software Upgrade Through Serial Port .....   | 64 |
| Appendix 1 Remote Control Unit .....            | 65 |
| Appendix 2 Frequently Asked Questions .....     | 66 |
| Appendix 3 Hard Disk Installation .....         | 67 |
| LIMITED WARRANTY.....                           | 69 |

## **Chapter 1    Product Specifications And Features**

- 1.   Product Specifications**
- 2.   Product Features**
- 3.   Storage Matrix**

## 1. Product Specifications

| Parameter               | 16 Channel   |
|-------------------------|--|
| Processor               | AMD ELANSC520/133 embedded microprocessor  |
| Operation system        | Real-time operation system - RTOS  |
| Model                   | DVR1604RW  |
| Video input             | 16Channel (NTSC/PAL) BNC 1.0V <sub>P-P</sub> 75Ω   |
| Video output            | 1 Channel PAL/NTSC BNC 1.0V <sub>P-P</sub> 75Ω video signal  |
| Audio input             | 16 Channel 200-1000mv10KΩ (BNC)  |
| Audio output            | 1 Channel 2000mv 1KΩ (BNC)   |
| Video display           | 1(Full Screen), 4(Quad), 9 (3x3), 16 (4x4) window displays   |
| Video standard          | NTSC 525 line, 60f/s – PAL 625 line, 50f/s   |
| System resource         | Real-time recording, one channel playback and network operation simultaneous (Triplex)                           |
| Image resolution        | Real-time monitor 704× 576, playback 352× 288, VGA output 720× 576   |
| Motion detection        | Area setting: 396 detection areas on the screen; detection sense setting: 3 levels detection sense for each area |
| Video compression       | MPEG-4 CBR (fixed frame rate); MPEG-4 VBR (variable frame rate)  |
| Audio compression       | Audio - ADPCM 28.8 Mb/hour G.729 - 3.6 Mb/hour Video - 40-460 Mb/hour  |
| Image compression rate  | 352× 288CIF format - 176× 144QCIF format - 704× 576 4CIF format.   |
| Video recording speed   | Real-time mode: NTSC 1f/s - 30f/s for each channel adjustable. PAL 1f/s - 25f/s for each channel adjustable;     |
| Image quality           | 6 levels selectable  |
| CDRW                    | Built-in CDRW writer for data backup   |
| Pre-Installed Hard Disk | A 80 Gigabyte Hard disk is preinstalled  |
| Hard Disk Expansion     | Inside equipped 4 IDE ports, able to install 8 HDDs inside, With CDRW option, up-to 6 internal HDDs supported    |
| HDD space used          | Audio - ADPCM 28.8Mb/hour G.729 - 3.6Mb/hour Video - 40-460Mb/hour   |
| Alarm input             | 8 channel voltage alarm input – 5 to 15V DC necessary for the alarm input.                                       |
| Alarm output            | 3 channels output, - output in open/close contact or controllable - 12V output -                                 |
| Alarm relay             | 30VDC 1A, 125VAC 0.5A - relay output.  |
| Network connection      | RJ45 10M/100M Ethernet connection  |
| Pan-tilt control        | RS485  |
| Power                   | 110VAC/220VAC  |
| Power consumption       | 70W  |
| Working temperature     | -10 - +55  |
| Working humidity        | 10% - 90% Relative   |
| Barometric pressure     | 86kpa - 106kpa   |
| Size                    | 2U standard industrial case 441mm (Wide) x 430mm (Deep) x 89mm (High)  |
| Weight                  | 11KG in Box  |



## **2. Product Features**

- Real-time Monitor (Video Displays)
  - o 1 Video output port to Video Monitor and 1 VGA port for video output to PC Type Monitor.
  - o Single window (Full Screen) /4 windows (Quad) /9 windows (3x3)/16 window monitor displays.
- Compression Method
  - o Multiple video compression modes: MPEG4 fixed frame variable frame.
  - o 8-channel audio/video real-time compression, independent hardware compression for each channel, stable synchronization of sound and image.
- Storage
  - o Internally can hold 8 IDE-compatible large capacity Harddisk(HDD)
  - o Alternative HDD operations that will reduce the power consumption and heat emission.
  - o Overwrite (FIFO) and Stop (HDD Full) modes for DVR HDD recording.
- Back-up
  - o Built-in CD-RW drive to back up records onto CD-R disks, upgradeable to DVR-RW drive.
  - o USB port for external back up of records.
  - o Download the files on DVR to local PC through network.
- Play and Record
  - o Supports multiplexed operation: live monitor, record, search for downloading, one channel play-back and remote transmission simultaneously.
  - o Multiple recording modes: Manual – Schedule – Alarm - Motion Detection. Note: Alarm Recording and Motion Recording have Pre-Alarm function.
  - o Playback: With PIP or Multi-Channel RealTime Monitor. Playback also available using Network Connection.
  - o Fast search for reviewing manual recording and alarmed recording.
  - o Multiple play-back modes: X2, X4 & X8 fast play, pause, 15F/S, 5F/S slow play and frame by frame playback.
  - o Displays Time/Date during playback.

- Alarm relay
  - o 8 channel external alarm input, video lost alarm and motion detection alarm.
  - o Multi channel relay switch alarm output activates alarm relay and on-site light control.
  - o Circuit Protection for Alarm inputs and outputs.
- Pan-tilt Control
  - o Supports Camera Pan-Tilt-Zoom (PTZ) Functions using RS485 Communication Protocol.
  - o Integrates multiple protocols to control various PTZ speed domes.
- Communication connection port
  - o 10-pin special port connection for alarm inputs and PTZ control.
  - o RS232 port for the connection with keyboard for central control, or with the computer serial port for system upgrades and diagnostics.
  - o Standard Ethernet port for remote viewing and control.
  - o Remote realtime monitor.
  - o Pan-tilt-zoom control.
  - o Record search and real-time playback. Note: playback quality dependent on network conditions. Downloading records through network.
  - o System programming, settings & modification and system software upgrades available online.
  - o Remote alarm processing and system log review remotely.
  - o Embedded TCP/IP protocol and RTOS (Real Time Operating System) supports Web server direct connection to operate and control all the above functions.
  - o Administration mode: Three USER levels for logging in remotely. Each user login is password protected.

### 3. Storage Matrix

The HDD Capacities and Recording lengths are determined by capacity of the installed HDDs and the selected image level.

**Note:** Adjustable frame rates, from 1fs to 30f/s can be selected. User can choose based on own needs.  
Using other than 30f/s (Real time), HDD (Hard Disk) space can be greatly increased.

Following are storage calculation guidelines :

| HDD occupy  | Image Quality   | 25F/S     | 12F/S     | 6F/S      | 3F/S     | 2F/S     | 1F/S     |
|---|-----------------|-----------|-----------|-----------|----------|----------|----------|
| MP4(VBR)<br>Average<br>HDD<br>occupy                              | 1               | 56M/Hour  | 30M/Hour  | 16M/Hour  | 8M/Hour  | 4M/Hour  | 2M/Hour  |
|   | 2               | 112M/Hour | 60M/Hour  | 32M/Hour  | 16M/Hour | 8M/Hour  | 4M/Hour  |
|   | 3               | 170M/Hour | 80M/Hour  | 43M/Hour  | 22M/Hour | 11M/Hour | 6M/Hour  |
|   | 4               | 230M/Hour | 120M/Hour | 64M/Hour  | 32M/Hour | 16M/Hour | 8M/Hour  |
|   | 5               | 340M/Hour | 160M/Hour | 86M/Hour  | 43M/Hour | 22M/Hour | 11M/Hour |
|   | 6               | 450M/Hour | 250M/Hour | 130M/Hour | 60M/Hour | 30M/Hour | 15M/Hour |
| HDD occupy<br>16 channels<br>real time<br>recording<br>in 30 days | Image Quality 6 | 5000G     | 2500G     | 1250G     | 620G     | 320G     | 150G     |
|   | Image Quality 5 | 3800G     | 1900G     | 970G      | 480G     | 240G     | 120G     |
|   | Image Quality 4 | 3000G     | 1500G     | 750G      | 370G     | 190G     | 92G      |

This datesheet is tested in a movable condition, the real HDD occupying coefficient is about 80% of the above list, but if in a very movable condition, the data will be greatly increased.

## **Chapter 2 Basic System Operations**

- 1. Start/Stop the DVR**
- 2. Recording**
- 3. Alarm Input/Output**
- 4. Pan-tilt Control**
- 5. Network**

## 1. Start/close the recorder

### 1.1 Start the recorder

Plug in the power line; switch on the power button at the back of the recorder; power indicator light on; DVR on; default single window for the video output displays; press Enter the Log-in screen appears on Monitor; If the starting time is within the programmed recording time, the system will start recording function automatically. Channel indicator lights will indicate the cameras in record mode. The system will work in a normal manner.

**Note:** if the system stops during HDD Boot detection, the HDD may not be installed right and please check the HDD connections (Ribbon and Power Connections). **\*Please unplug the 120VAC power supply during HDD installation\***

### 1.2 Enter the setting menu

Before you enter the menu, you must input the password. There are two levels of password—User password and Administrator password.

**Administrator password**        888888

**General user password**        666666

If input the user password, you have to input again at the next login; you are also not allowed to enter **system setting** and **admin setting**.

**Note:** For the consideration of security, please change the Administrator password in **admin settings**. Refer to Chapter 4 Front Panel Menu Operation for details.

### 1.3 Turning off the DVR

Press the POWER key on the front panel for 4 seconds to stop the current operations. Then switch off the power button at the DVR rear to turn off the power.

### 1.4 Power off recovery

When the power is cut off abnormally, the recorder will recall its last state and continue where it left off. The state indicator light is the same as it was before the power off.

## 2. Recording

The default recording mode after startup of the DVR is 24 hr continuous recording for each channel. The User can program customized recording times for each camera. Instructions for the different recording modes are as follows:

a) Schedule Recording:

- Enter the menu, and set the schedule period for the recording. See details at **Menu>System**

**setting>Schedule**

b) Manual Record Selection

- Press “ Record” button on the remote controller or “ Rec” on the front panel.
- Check the status of each channel in the recording menu; The Highlighted channels are in record

mode.

- To select the channel to be recorded, press the related number key. Selected camera # will highlight on your screen. When all cameras that need to be recorded are selected, press Enter to begin the recording.

- Repeat above steps and remove the highlight to stop the camera from recording. ·Press

Cancel or ESC to return without changes.

c) Alarm recording

- Connect the alarm input according to the device connection and the instructions.

- Program the related settings in the menu to start Alarm recording. See details at

**Menu>System setting>Alarm setting**

d) Motion detection recording

- Record the channel only in need of motion detection. First confirm whether this channel is

programmed in Schedule Recording; if it is, please turn off Schedule Recording for the selected

Camera...

- Program the related settings in the menu to start Motion detection recording. See details at

Menu>System setting>Motion detection.

### 3. Alarm connection operation

- Connect the alarm input according to the device connection and the instructions.
- Connect the related alarm output relay on the DVR to associated alarm device. Example: lights, beeper, etc.
- Program the associated information in the menu. See details at Menu>System setting>Alarm setting

### 4. Pan-tilt control operation

- Confirm the proper connection of the pan-tilt-zoom and Communication Protocol. Set the Camera address.
- Confirm the proper wiring connection between the PTZ and RS-485 A & B lines and DVR's 25-pin port's A & B lines.
- Set up the programming. See details at Menu>System setting>Control
- Select full screen call-up of associated P/T/Z Camera.
- Press and hold "Assistant" on the remote controller or "Fn1" on the front panel to select
- Use direction arrow keys to move and control the selections on the screen

### 5. Network connection operation

- Confirm correct network connections between DVR and computer
- Set the IP address, subnet mask and gateway of the computer and DVR separately. If there is no router in the network, only the IP address is needed. If there are routers in the network, please enter the related gateway and subnet mask.

- Ping \*.\*.\*.\*.\*.\*.\*.\* the IP address of the DVR to check the link of the network. A successful reply shall look like (TTL value less than 64 ms is normal):

Reply from 68.153.205.130: bytes=32 time=31ms TTL=57

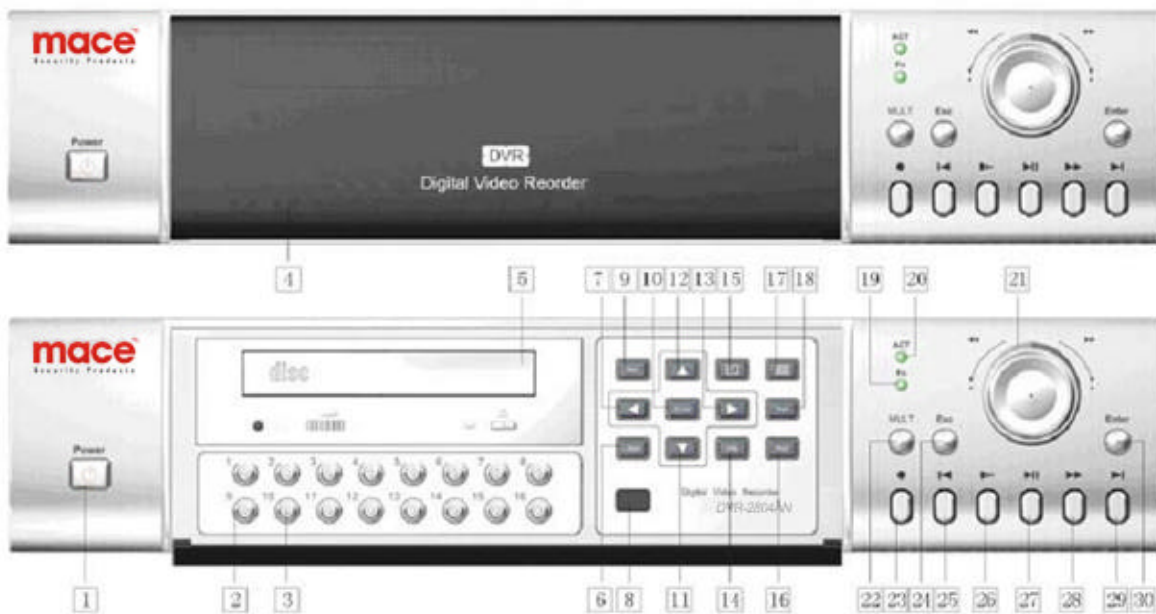
- Open IE browser and input the IP address of the DVR you want to log in to.
- For Network operation see details at Chapter 4



## **Chapter 3 Operations From Front Panel**

- 1. Front Panel Overview**
- 2. Detail Key Function**
- 3. Entering the Operation Menu**
- 4. Maneuver in the Operation Menu**
- 5. Menu Overview**
- 6. Operation Description**
  - 6.1 Recording**
  - 6.2 Playback**
  - 6.3 Pan-Tilt and Zoom Camera Control**
  - 6.4 Menu Detail**

## 1. Front Panel Description



|                            |                            |                             |                       |
|----------------------------|----------------------------|-----------------------------|-----------------------|
| 1. Power Switch            | 2. Camera Selection #      | 3. Recording Light          | 4. Control Cover      |
| 5. CD-RW                   | 6. Onscreen Addr Entry     | 7. Left Direction           | 8. IR Remote Receiver |
| 9. ESC (Cancel)            | 10. Enter                  | 11. Down Direction          | 12. Up Direction      |
| 13. Right Direction        | 14. Information            | 15. Single & PIP Selection  | 16. FN2 (Function 2)  |
| 17. Multi-screen Selection | 18. FN1 (Function 1)       | 19. FN Indication Light     | 20. Standby Light     |
| 21. Jog Shuttle            | 22. Multi-screen Selection | 23. Rec (Recording Control) | 24. ESC (Cancel)      |
| 25. Replay Last Selection  | 26. Slow Play              | 27. Play/Pause              | 28. Fast Forward      |
| 29. Jump to Next Section   | 30. Enter                  |                             |                       |

**Note:** Outside Ring of the jog shuttle when turning clockwise is equal to right direction arrow, turning counterclockwise is equal to left direction arrow; inner circle turning clockwise equal to down direction, otherwise equal to up direction.

**2. Keys functions**

| Order   | Key name                          | Logo                 | Function   |
|---------|-----------------------------------|----------------------|--|
| 1       | Power switch and indication light | POWER                | Power switch - Power off by pressing the key 4 seconds.  |
|         |                                   |                      | Indication light   |
| 2       | Camera Selection Numbers          | 1, 2, 3 etc.         | Manual Password # input, window shift or number input; 10 is used for numeric input 0.                 |
| 3       | Recording light                   | LED (Red) on numbers | If the LED light is RED, it means the recording is on  |
| 4       | Plastic Cover                     | Black plastic        | Dust-proof Cover   |
| 5       | CD-RW                             | CD-RW                | Used to Back-up records  |
| 6       | Address                           | ADD                  | Input remote control address for the operation of DVR.   |
| 7 & 13  | Left & Right Arrows               | ◀ ▶                  | L & R On screen Cursor Control; shifting level 1 and level 2 menus; Left and Right Camera Pan control. |
| 11 & 12 | Up & Down Arrows                  | ▲ ▼                  | Up and Down Onscreen Cursor Control; change setup; change number; Camera Tilt control.                 |
| 8       | IR Remote receiver                |                      | Used to receive the remote signal.   |
| 9 & 24  | Cancel                            | ESC                  | Cancels cursor selection.  |
|         |                                   |                      | During playback, restore to real-time monitor.   |
| 10      | Enter                             | ENTER                | Enter Cursor Selection.  |
|         |                                   |                      | Enter main menu.   |
| 14      | Information                       | INFO                 | Press to show the system information.  |
| 15      | Single window display             | ?                    | Shift the window to single window  |
| 16      | Function assistant 1              | Fn1                  | In the Full Screen Mode:<br>Press the key to display the menu of the Camera PTZ.                       |
|         |                                   |                      | When setting Motion Detection fields, Fn1 Enables Cursor field selection.                              |
|         |                                   |                      | During playback, display the playback status bar   |
| 17      | Function assistant 2              | Fn2                  | During playback work with number key to realize PIP for the playback and real-time monitor.            |
| 18      | Multi-Screen Display              |                      | Select to change from Full screen to multi-window display.   |

|    |                                 |              |  |
|----|---------------------------------|--------------|--|
| 19 | Assistant indication light      |              | Indication light for when Function assistant keys are used.  |
| 20 | Indicator light for standing by |              | Light on when DVR is in stand by Mode.   |
| 21 | Jog shuttle                     |              | Direction control: outer Ring for Left and Right direction, inner Ring for up and down; When in playback, outer circle can control reverse and multi-speed play. |
| 22 | Multi-Screen Display            | <b>MULT</b>  | Select for Multi-Screen; During playback, shift between Playback and Real time display.  |
| 23 | Record                          | <b>REC</b>   | Start/stop recording, use with arrow keys  |
| 25 | Play last section               | ⏮            | Play the previous recording file.  |
| 26 | Slow play                       | ?            | 3 levels of slow play speed adjustments: (15f/S - 5f/S & frame by frame)   |
| 27 | Play/stop                       | ▶ /          | Play/stop  |
|    |                                 |              | When in real time mode, press to enter record search menu  |
| 28 | Fast play                       | ▶▶           | 3 levels of fast play speed - X2 - X4 - X8.  |
| 29 | Play next section               | ▶▶           | Play the next recording file after the current file.   |
| 30 | Enter                           | <b>ENTER</b> | Enter  |
|    |                                 |              | Enter the main menu.   |

### 3. Enter/Leave the Operation Menu

Press **Enter** key twice, the system will prompt for password.

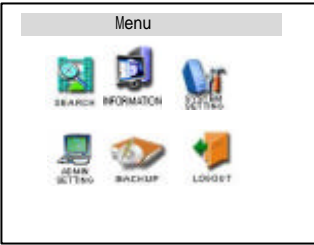
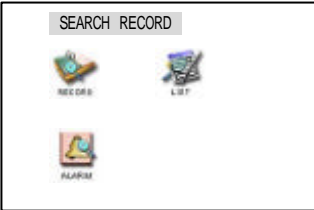
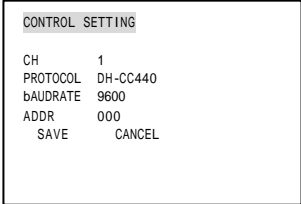
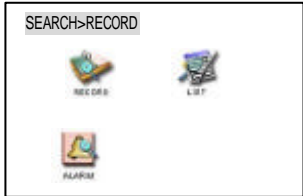
Default Administrator password is “**888888**”.

Default User password is “**666666**”.

If not touched for 5 minutes, the system will automatically logout the currently user.










For security reason, the Administrator may choose to manually logout under Menu/ Logout






#### 4. Maneuver in the Menu System

| Operation step                      | Button-pressing order      | Instruction  | Screen display  |
|-------------------------------------|----------------------------|--|---|
| Enter main menu and level 1 submenu | 1 Confirm <b>Enter</b>     | During real-time monitor, press to open the password prompt, type in the correct password, then the menu will auto open. |    |
|                                     | 2 Direction arrows<br>▲▼▶◀ | Use arrows to select Icon Choice.  |   |
|                                     | 3 Confirm <b>Enter</b>     | Press Enter to select choice   |   |
| Enter level 2 submenu               | 4 Direction<br>▲▼▶◀        | Use arrows again to select #2 submenu choice   |    |
|                                     | 5 Confirm <b>Enter</b>     | Press Enter to select level 2 submenu  |   |
| Set menu contents                   | 1 Use Direction Arrow ▶    | Select the option to be revised, flashing item is the selection.   |   |
|                                     | 2 Direction ▲▼             | Use Up/Dn arrows to revise the settings.   |   |
|                                     | 3 Press <b>Enter</b>       | <b>Save</b> is flashing, choose to confirm whether you want to keep the revised setting and press Enter again.           |   |
| Exit the current menu               | Direction Arrow<br>◀       | Return to the last option of the current menu  |  |
|                                     | Cancel <b>ESC</b>          | Exit to the last level menu  |   |






✧ You can set the multiple channels before you exit the current menu and save all the settings together.








## 5. Menu Overview





| Main menu  | Menu level 1   | Menu level 2   | Remarks  |
|--|--|--|--|
| SEARCH<br>        | RECORD<br>          | CH 1<br>DATE 24-10-2003<br>TIME 2:20 PM<br>PLAY START  | Use DIRECTION arrows to perform settings in menu level 2<br>See details at 6.4.1                           |
|  | LIST<br>            | CH 1<br>DATE 24-10-2003<br>TIME 2:20 PM<br>LIST SEARCH   | Use DIRECTION arrows to perform setting in menu level 2.<br>See details at 6.4.1                           |
|  | ALARM<br>           | CH 1<br>DATE 24-10-2003<br>SEARCH START  | Records associated with Alarm Inputs. Not able to search motion detection records.<br>See details at 6.4.1 |
| INFORMATION<br> | FILE INFO<br>       | START TIME 24-10-2002 09 : 20<br>END TIME 24-10-2002 20 : 20<br>FREE SPACE 00028318M   | Information cannot be modified   |
|  | HARD DISK STATE<br> | HDD NUM 0 1<br>HDD CAPACITY 0 1 6 0 0 8 6M<br>FREE SPACE 00028318M<br>INDEX 1 2 3 4 5 6 7 8<br>MASTER - - - - -<br>SLAVE - - - - -<br>CDR STATE NO<br>USB STATE NO   |  |
|  | VERSION<br>       | BIOS VERSION 2.46<br>FILE VERSION 4.01<br>WEB VERSION 1.69<br>ISSUE DATE 08-16-2004  |  |
|  | BPS<br>           | CH.1 CH.2 CH.3 CH.4<br>0538Kb 0302 Kb 0267 Kb 0112 Kb<br>256M/H 132M/H 117 M/H 49M/H<br>CH.5 CH.6 CH.7 CH.8<br>0663 Kb 0227 Kb 0050 Kb 0283 Kb<br>291M/H 99M/H 21M/H 124M/H<br>CH9 CH.10 CH.11 CH.12<br>0663 Kb 0227 Kb 0050 Kb 0283 Kb<br>291M/H 99M/H 21M/H 124M/H<br>CH13 CH.14 CH.15 CH.16<br>0663 Kb 0227 Kb 0050 Kb 0283 Kb<br>291M/H 99M/H 21M/H 124M/H |  |

| Main menu  | Menu level 1  | Menu level 2   | Remarks              |
|--|---|--|----------------------|
| SYSTEM<br>SETTING<br> | GENERAL<br>  | DATE 2003-07-13<br>FORMAT DD-MM-YY<br>TIME 08:30:30<br>FORMAT AM/PM SAVE TIME<br>HDD FULL OVERWRITE<br>REC-LENGTH 60 MIN<br>REMOTE ADDRESS 008<br>VIDEO MODE PAL<br>SHUT PASSWORD OFF<br>DEFAULT SAVE CANCEL   | See details at 6.4.3 |
|  | SCHEDULE<br> | CH 01<br>WEEK TIME1 TIME2<br>SUN 00:00 - 24:00 ON 00:00 - 24:00 OFF<br>MON 00:00 - 24:00 ON 00:00 - 24:00 OFF<br>TUE 00:00 - 24:00 ON 00:00 - 24:00 OFF<br>WED 00:00 - 24:00 ON 00:00 - 24:00 OFF<br>THU 00:00 - 24:00 ON 00:00 - 24:00 OFF<br>FRI 00:00 - 24:00 ON 00:00 - 24:00 OFF<br>SAT 00:00 - 24:00 ON 00:00 - 24:00 OFF<br>ALL 00:00 - 00:00 ON 00:00 - 00:00 OFF<br>DEFAULT SAVE CANCEL | See details at 6.4.3 |
|  | IMAGE<br>  | CH 01<br>NAME CHANNEL 01<br>QUALITY 06<br>FRAMERATE 25F/S<br>BITRATE VBR<br>VIDEO LOSS ALARM SHUT ALARM<br>ALARM TIP NO TIP<br>COVER SET OFF<br>DEFAULT SAVE CANCEL  | See details at 6.4.3 |
|  | ALARM<br>  | CH 01<br>TYPE NORMAL OPEN<br>SERIAL 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16<br>OUTPUT<br>RECORD<br>TIME1 00 : 00 - 24 : 00 ON<br>TIME2 00 : 00 - 24 : 00 OFF<br>PRE-RECORD OFF<br>DELAY 30S<br>TIP OFF<br>DEFAULT SAVE CANCEL   | See details at 6.4.3 |



| Main menu  | Menu level 1   | Menu level 2   | Remarks              |
|--|--|--|----------------------|
| SYSTEM<br>SETTING<br> | PANTILT<br>CONTROL<br>    | CH 1<br>PROTOCOL NONE<br>ADDRESS 0 0 8<br>BAUDRATE 4 8 0 0<br>DATABIT 8 BIT<br>STOPBIT 1 BIT<br>VERIFY NONE<br>DEFAULT SAVE CANCEL   | See details at 6.4.3 |
|  | NETWORK<br>               | HOSTNAME DVR1600<br>I P 192.168.000.111<br>SUBNETMASK 255.255.255.000<br>GATEWAY 192.168.000.001<br>WEB PORT 00080<br>TCPPORT 37777<br>MONITOR TCP<br>DEFAULT SAVE CANCEL  | See details at 6.4.3 |
|  | MOTION<br>DETECTION<br> | CH 0 1<br>No 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16<br>ALMOUT<br>RECORD<br>DELAY 30 SEC TIP OFF<br>PRECORD ON<br>LEVEL HIGH<br>AREA SET<br>TIME1 10:00AM—02:00PM OFF<br>TIME2 10:00AM—02:00PM OFF<br>DEFAULT SAVE CANCEL | See details at 6.4.3 |
|  | RS 232<br><br>RS 232    | COMFUNC HYPETERM<br>BAUDRATE 115200<br>DATA BIT 8 BIT<br>STOP BIT 1 BIT<br>VERYIFY NULL<br>DEFAULT SAVE CANCEL   | See details at 6.4.4 |

|  |  |  |  |   |
|--|--|--|--|---|
| ADMIN<br> | PASSWORD<br>    | GUEST *****<br>CONFIRM *****<br>MANAGE *****<br>CONFIRM *****<br>SAVE CANCEL   |  | If use manage password to log in, able to change password.<br>See details at 2.6.4  |
|  | FILE MANAGE<br> | FILE DEL<br>HDD SET<br>MAINTENACE  | DELETE ALL FILES ?<br>OK CANCEL<br>HDD 01<br>SETTING<br>WORK-HDD<br>No. 1 2 3 4<br>STATE w - - -<br>OK CANCEL<br>SUN OFF<br>MON OFF<br>.....<br>ALL OFF<br>SAVE CANCEL | Need Admin password   |
|  |  |  |  |   |
|  |  |  |  |   |
|  | OUT MODE<br>   | FONT COLOR WHITE TIMEOSD ON<br>TITLE WHITE CHAN-OSD ON<br>POINT-CX 003 POINT-CY 003<br>MONHEIGHT 530 PLAYHEIGHT 530<br>VGA-MODE 1024*768*60<br>LOGO OFF<br>ROTATE OFF INTERVAL 005S<br>INDEX 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16<br>OUTPUT1<br>OUTPUT2<br>DEFAULT SAVE CANCEL |  | May select the font color on the menu as you like.<br>May set the original point on the real time monitor window , and the size of the real-time monitor and playback window.<br>May select font color , and set channel rotating state |
|  | ALARM IN<br>  | ALARM IN<br>1 2 3 4 5 6 7 8<br>9 10 11 12 13 14 15 16<br>SAVE CANCEL   |  | Enabled the alarm input manually  |
|  | ALARM OUT<br> | ALARM OUT<br>1 2 3 4 5 6 7<br>SAVE CANCEL  |  | Give alarm output signal manually   |
|  | DEFAULT<br>   | NETUSER<br>DEFAULT   | RESUME NETUSER?<br>OK CANCEL<br>SURE TO LOAD?<br>OK CANCEL   | Restore the original set<br>Need Admin password.  |


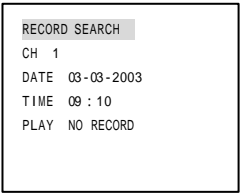
|  |  |   |   |
|--|--|---|---|
| <b>BACKUP</b><br> | <b>BACKUP RECORDS</b><br> | DEVICE     HDD<br>CH         1<br>SPEED     FAST<br>START TIME   2003-3-18 18 : 18 : 16<br>END TIME    2003-3-18 19 : 18 : 16<br>SEARCH      START<br>BACKUP      START | Choose the backup device and select the wanted file to backup records<br>See details at 2.6.5 |
|  | <b>DELETE BACKUP</b><br>  | DEVICE     HDD<br>SURE TO DELETE ?<br>OK    CANCEL  |   |
| <b>LOGOUT</b><br> | SURE TO LOGOUT?<br>OK    CANCEL  |   | Exit the menu and need input the password on next logging in                                  |

## 6. Menu Operation Description

### 6.1 Recording Operation


| Model                | Button-pressing order                            | Instruction   | Display  |
|----------------------|--|---|--|
| DVR0804<br>(Example) | 1. Record <b>REC</b>                             | Press to enter screen display.<br><br>recording state<br><br>non-recording state                            | Record:1 2 3 4 5 6 7 8<br><br>9 10 11 12 13 14 15 16 |
|                      | 2. Direction <b>▲▼</b> or the related number key | Press to toggle the recording state on/off. The highlighted Camera # means Record On or selected to Record. | Record:1 2 3 4 5 6 7 8<br><br>9 10 11 12 13 14 15 16 |
|                      | 3 Direction <b>◀▶</b>                            | Arrow to change camera channels. The highlighted item means On.   |  |
|                      | 4 Record <b>REC</b><br><br><b>OR Enter</b>       | Press to save the setting.  |  |

### 6.2 Playback operation

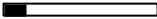
| Button-pressing order | Instruction  | Display   |
|-----------------------|--|---|
| 1 Play/Pause          | Press the button to enter screen display.(if logged out, log back in with password)  |   |
| 2 Play/Pause          | Press twice to begin the playback (The on screen video displays channel, date, time). If display shows no record found, the operation will not take effect. After the completion of the playback, display shows “The End”. |  |

To display Record Information during playback, press **Fn** to display or hide the playback state bar.

### 6.2.1 Playback fast play

| Button-pressing order                  | Instruction  | Display   |
|--|--|---|
| 1 Fast play ►►                         | During playback press this key to shift between 2X speed, 4X speed, or 8X speed.             | CH1 PLAY X2  |
| 2 Play/Pause                           | During fast play press this key to shift between play and pause.                             |   |
| 3 Play next section, play last section | Operates in playback state. Press ◀◀ ▶▶ to view the next or last record of the same channel. |   |

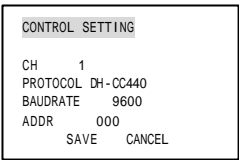
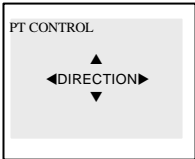

### 6.2.2 Playback slow play

| Button-pressing order                  | Instruction   | Display  |
|--|---|--|
| 1 Slow play ?                          | During playback press to shift among 30f/s, 15f/s, 1f/s speed.                                | CH1 PLAY 15F/S  |
| 2 Play/Pause                           | During slow play of the playback record press to shift between play and pause.                |  |
| 3 Play next section, play last section | Works when in Playback Mode. Press ◀◀ ▶▶ to view the next or last record of the same channel. |  |

✧ 1f/s speed during slow play is a frame by frame selection.

### 6.3 Control of Pan-Tilt and Zoom Cameras

**\*The PTZ Camera # must be selected on DVR before you can control the camera from the DVR or remotely.**

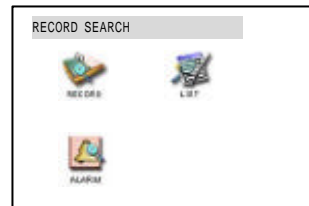
| Button-pressing order              | Instruction  | Press Fn to display  |
|------------------------------------|--|--|
| 1 Refer to menu operation at 6.4.4 | In <b>Control setting</b> select the related <b>Channel</b> and <b>Protocol</b> , see the right picture. Set the <b>Baudrate</b> and <b>Address</b> of the PTZ Camera. Press Enter to save.  |   |
| 2 Assistant function <b>Fn1</b>    | When in Full Screen Mode, press Fn1 to enter the screen display.<br>Press continuously to shift among <b>PT CONTROL</b> , <b>DIRECTION</b> , <b>LENS CONTROL</b> , <b>ZOOM FOCUS IRIS</b> , <b>LIGHT CONTROL</b> (OFF ON). Use arrows to adjust. |   |
| 3 Direction <b>▲▼◀▶</b>            | Control the related pan-tilt, lens and light. Use Arrows to select.  |  |

## 6.4 Menu Operation Detail

**\*The following Menu settings must be saved before the changes take effect.\***

### 6.4.1 Record search

The menu for record search is pictured at the right.



#### Record

First set the channel#, then date and time you want to search, and then select **START**, the playback begins.

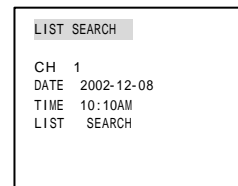


#### List

First set the channel #, date and time you want to search, and then select **SEARCH**, the screen shows the 8 recording files following the searching time. Use **▲▼** to select the file to be played. Press **ENTER** to begin the playback.

Note the letters before the record are equal to following

R—Record M—Motion Detection A—Alarm



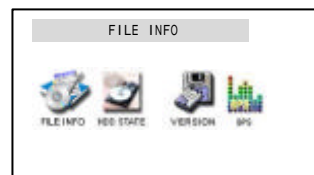
#### Alarm

First set the search date, then select **START**, all the alarm records will be displayed. Press **▲▼** to select the record. Press **ENTER** to play the alarm record. Note: motion detection alarm can not be searched in this category, but can be searched in **RECORD** and **LIST**.

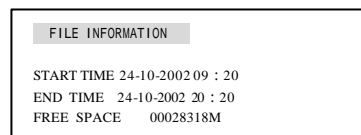


## 6.4.2

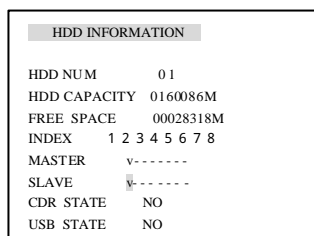
Menu of Information is pictured at right.

**File Info**

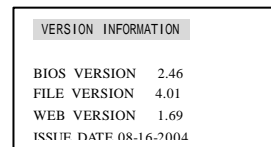
Recording start time (the earliest recording time among all the HDDs) and recording end time. The information cannot be changed.

**HDD State**

Display HDD index and the conditions of master drive and slave drive. Note: The HDD being used will show as “W”.

**Version**

The issuing date and ID of the operating system. The information cannot be modified.

**BIT RATE  
STATISTICS**

Real time display the frame rate of the current channels and the space occupied

Frame rates are in Kb/s

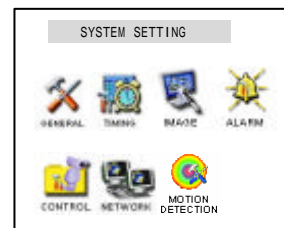
HDD space occupied in MB/h

| CH.1   | CH.2   | CH.3    | CH.4   |
|--------|--------|---------|--------|
| 0538Kb | 0302Kb | 0267Kb  | 0112Kb |
| 256M/H | 132M/H | 117 M/H | 49M/H  |
| CH.5   | CH.6   | CH.7    | CH.8   |
| 0663Kb | 0227Kb | 0050Kb  | 0283Kb |
| 291M/H | 99M/H  | 21M/H   | 124M/H |
| CH.9   | CH.10  | CH.11   | CH.12  |
| 0663Kb | 0227Kb | 0050Kb  | 0283Kb |
| 291M/H | 99M/H  | 21M/H   | 124M/H |
| CH.13  | CH.14  | CH.15   | CH.16  |
| 0663Kb | 0227Kb | 0050Kb  | 0283Kb |
| 291M/H | 99M/H  | 21M/H   | 124M/H |

## 6.4.3 System Setting

Picture of the System Setting Menu

See screen shot at right:





## General

**DATE** and **TIME** are used to modify the current system date and time; after the modification reserve the change by selecting **SAVETIME**; in **HDDFULL** if selecting **OVERWRITE** system covers the previous recording files; **RECORDLEN** can set the length of each recording file(15 mins, 30 mins, 60 mins)Note: 15 minutes is suggested. **COMMCTRL** can activate the communication control protocols. The existing comm control protocols are:

MODEM - Dial-up connection through modem.

AB- matrix control

DH Keyboard control

NONE upgrading system through serial port

**Note: System time shall NOT be changed freely; otherwise it would cause the malfunction of recording search.**

### GENERAL SETTING

```
DATE      2003-07-13
FORMAT    DD-MM-YY
TIME      08:30:30
FORMAT    AM/PM  SAVE TIME
HDDFULL   OVERWRITE
REC-LENGTH 60 MIN
REMOTE ADDRESS 008
VIDEO MODE    PAL
SHUT PASSWORD OFF
DEFAULT SAVE  CANCEL
```

## Schedule

Select the corresponding channel in **CH**. In **WEEK** the letter of each day is chosen, when the letter displays are highlighted. **TIME1** and **TIME2** express the timed recording period of the current channel. **TIME2** should be after the ending time of **TIME1**. The setting range is 00:00-24:00 **STATE** ON means the time setting is on. OFF means the time setting is OFF.

**Note:** 1: If you need to record all day long, set **TIME1** as 00:00-24:00 & state is on; set **TIME2** as off. 2: When setting time in **WEEK**, several days can be set at the same time.

When reviewing a certain channel's timing, only the current day will be highlighted.

### SCHEDULE

```
CH      01
WEEK    TIME1      TIME2
SUN 00:00-24:00 ON 00:00-24:00 OFF
MON 00:00-24:00 ON 00:00-24:00 OFF
TUE 00:00-24:00 ON 00:00-24:00 OFF
WED 00:00-24:00 ON 00:00-24:00 OFF
THU 00:00-24:00 ON 00:00-24:00 OFF
FRI 00:00-24:00 ON 00:00-24:00 OFF
SAT 00:00-24:00 ON 00:00-24:00 OFF
ALL 00:00-24:00 ON 00:00-24:00 OFF
DEFAULT SAVE  CANCEL
```

## Image

In **CH** option select the related channel. In **MODE** there are CBR (audio/video) and VBR (audio/video). **AV** is audio and video synchronization, **Video** is the mode without audio (when there is no audio input use this way to save HDD space). When in **CBR**, **Framerate** is Real time, **Bitrate** is the related maximum data flux. Use direction key to select the different bitrates. When in **VBR**, **Framerate** 1f/s-25f/s are selectable. **Video Loss** on means that alarm will be on when the video is lost, and also trigger the relay device.

### IMAGE SETTING

```
CH      01
NAME     CHANNEL 01
QUALITY  06
FRAMERATE 25F/S
BITRATE   VBR
VIDEO LOSS ALARM SHUT
ALARM
ALARM     TIP NO TIP
COVER SET OFF
DEFAULT SAVE  CANCEL
```

**Alarm**

Select the relevant Camera in **CH** (this recorder has 8-Ch alarm input). **TYPE** has NO (normal open) NC (normal close) output modes. If the Camera number in **RECORD** is selected, recording would be started for that Camera automatically when there is alarm input. If the alarm output port is chosen, it will trigger the corresponding relay when there is an alarm input. **DELAY** means to extend the recording time after receiving alarm signal clears. 10, 20, 30 .....90SEC delays. When the outside alarm is cleared, the system will extend the recording time automatically before closing alarm and relay output. When Time 1 or Time 2 are on, if an alarm occurs within the time of these settings, the recording will be triggered by alarm signals. The beginning time should be earlier than the ending time. The setting in Time 2 should be later than the setting in Time 1. **ALMSVR IP** is used to transmit the alarm signals to the designated IP server.

| ALARM SETTING       |  |
|---------------------|--|
| CH                  | 01                                     |
| TYPE                | NORAML OPEN                            |
| No                  | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 |
| OUTPUT              |  |
| RECORD              |  |
| TIME1               | 00 : 00 - 24 : 00 ON                   |
| TIME2               | 00 : 00 - 24 : 00 OFF                  |
| PRE-RECORD          | OFF                                    |
| DELAY               | 30S                                    |
| TIP                 | OFF                                    |
| DEFAULT SAVE CANCEL |  |

**Pan-tilt control**

Select the corresponding channel in **CH**, and choose the protocol of the brand name of the corresponding pan-tilt decoder in **PROTOCOL**.

**ADDR** is the address of the corresponding PTZ Camera.

| PTZ CONTROL         |       |
|---------------------|-------|
| CH                  | 1     |
| PROTOCOL            | NONE  |
| ADDRESS             | 008   |
| BAUDRATE            | 4800  |
| DATA BIT            | 8 BIT |
| STOP BIT            | 1 BIT |
| VERIFY              | NULL  |
| DEFAULT SAVE CANCEL |       |

**Network**

**IP** is set by using ▲▼ or input the exact numbers to change the IP address. IP address setting can only be here. The related **SUBNETMASK** and **GATEWAY** should be set according to the IP address. **MONITOR** and **PLAYBACK** can be changed by using ▲▼TCP/IP or MULTICAST. Save the setting in **SAVE**, and restart the recorder.

**Note:** MULTICAST: The users with Admin levels can monitor each channel freely. All other users can only view after Admin releases camera. 5 users at maximum.

| NETWORK SETTING |                 |
|-----------------|-----------------|
| IP              | 192-168-000-141 |
| SUBNETMASK      | 255-255-255-000 |
| GATEWAY         | 192-168-000-001 |
| WEB PORT        | 00080           |
| TCP PORT        | 37777           |
| MONITOR         | TCP             |
| PLAYBACK        | TCP             |
| SAVE CANCEL     |                 |

TCP Protocol: All users are able to monitor any channel. User shall select Camera # desired. If the transmission is over Internet, TCP should be chosen. 2 users can log in at a maximum.

**Motion detection**

Select the Camera channel in **CH**. Open or close (On/Off) the function in **STATE**. Choose how long you want to continue the recording (10, 20, 30, ....90SEC) when motion is detected and then cleared. **ALMOUT** controls the alarming state for motion detection. **SENS** has three levels: LOW, MID, HIGH. **AREA** can be accessed by pressing **ENTER**. The setting area can be divided in 192 sections. Red section means the current cursor position, and the blue section is the motion detection area. Areas with no color are no motion detection areas. Press **Fn** to locate the current section, then move the cursor to cover the MD area needed; press **Fn** again to choose the MD area. Press ▲▼ to get the setting and press **ENTER** to confirm.

| MOTION DETECTION    |  |
|---------------------|--|
| CH                  | 01                                     |
| No                  | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 |
| ALMOUT              |  |
| RECORD              |  |
| DELAY               | 30 SEC TIPS OFF                        |
| PRECORD             | ON                                     |
| LEVEL               | HIGH                                   |
| AREA                | SET                                    |
| TIME1               | 10:00AM—02:00PM OFF                    |
| TIME2               | 10:00AM—02:00PM OFF                    |
| DEFAULT SAVE CANCEL |  |

**RS232** **COMFUNC** select super terminal or Keyboard.  
**BAUDRATE** select correspond baud rate. DATA BIT selection 1-8.  
**STOP BIT** three selection 1、 1.5 and 2.  
**VERIFY** odd and even

| RS232               |          |
|---------------------|----------|
| COMFUNC             | HYPETERM |
| BAUDRATE            | 115200   |
| DATA BIT            | 8 BIT    |
| STOP BIT            | 1 BIT    |
| VERIFY              | NULL     |
| DEFAULT SAVE CANCEL |          |

## 6.4.4 Admin setting

Menu of Admin setting is pictured at Right:

| ADMIN SETTING |             |         |
|---------------|-------------|---------|
|               |             |         |
| PASSWORD      | FILE DELETE | HDD SET |
|               |             |         |
| DEFAULT       |             |         |

**Password** Select **GUEST** and **MANAGE**. Press ▲▼ or the number key to change the password, then confirm the change by inputting the password again. Press **ESC** to go back to the sub menu. Only **MANAGE** level user can change the password.

| PASSWORD    |       |
|-------------|-------|
| GUEST       | ***** |
| CONFIRM     | ***** |
| MANAGE      | ***** |
| CONFIRM     | ***** |
| SAVE CANCEL |       |

### Manage

**FILE DEL** Input advanced password, and enter **FILE DELETE**. If you are sure to clear the files on the HDD, click OK.

| FILE DELETE       |  |
|-------------------|--|
| DELETE ALL FILES? |  |
| OK CANCEL         |  |

**HDD SET** Set working state of HDD. W means working HDD

| HDD SET          |               |
|------------------|---------------|
| HDD              | 01            |
| SETTING WORK-HDD |               |
| No.              | 1 2 3 4 ..... |
| STAT W           | --- .....     |

**Out mode** **FONT COLOR**: default color, green, orange, blue and red, press ▲▼ to select.

**POINT X**, **POINT Y**: adjust the origination of the real-time monitoring window.

The numerical range of **POINT X** and **POINT Y**: 0—352 and 0—288.

**MONITOR HEIGHT**, **PLAYBACK HEIGHT**: Set the numerical range by using the direction key to zoom the window of real-time monitoring video and playback video.

The range is 288-576.

**OUTPUT1**, it can rotate in a SPLIT 1/4/9/16 mode. Those channels marked with can be showed circularly after a certain interval.

**OUTPUT2**, it can rotate in a single window by window mode. Those channels marked with can be showed circularly after a certain interval. Input the advanced password and press **ENTER** to confirm to select the default setting.

| OUT MODE                                  |                    |
|---|--------------------|
| FONT COLOR                                | WHITE TIME-OSD ON  |
| TITLE                                     | WHITE CHAN-OSD ON  |
| POINTCX                                   | 003 POINT-CY 003   |
| MONHEIGHT                                 | 530 PLAYHEIGHT 530 |
| VGA-MODE                                  | 1024*768*60        |
| LOGO                                      | OFF                |
| CYCLE                                     | OFF INTERVAL 005S  |
| No.1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 |                    |
| OUTPUT1                                   |                    |
| OUTPUT2                                   |                    |
| DEFAULT SAVE CANCEL                       |                    |

**Alarm in** Set Alarm input connection

|             |    |    |    |    |    |    |    |  |  |  |  |  |  |  |  |
|-------------|----|----|----|----|----|----|----|--|--|--|--|--|--|--|--|
| ALARM IN    |    |    |    |    |    |    |    |  |  |  |  |  |  |  |  |
| 1           | 2  | 3  | 4  | 5  | 6  | 7  | 8  |  |  |  |  |  |  |  |  |
| 9           | 10 | 11 | 12 | 13 | 14 | 15 | 16 |  |  |  |  |  |  |  |  |
| SAVE CANCEL |    |    |    |    |    |    |    |  |  |  |  |  |  |  |  |

**Alarm out** Set Alarm output connection

|             |   |   |   |   |   |   |
|-------------|---|---|---|---|---|---|
| ALARM OUT   |   |   |   |   |   |   |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 |
| SAVE CANCEL |   |   |   |   |   |   |

**Default**

**Net user**

**Default**

|                 |        |
|-----------------|--------|
| RESUME NETUSER? |        |
| OK              | CANCEL |

|              |        |
|--------------|--------|
| SURE TO LOAD |        |
| OK           | CANCEL |

**Default**

Press **▲▼** to get the setting and press **ENTER** to confirm. After the default setting is selected, system will restore the original Factory Default settings.

|                          |    |
|--------------------------|----|
| DEFAULT                  |    |
| LOAD DEFAULT CONFIGURES? |    |
| YES                      | NO |

## 6.4.5 Backup

Menu of Backup is pictured at Right:



### Backup records

Move the cursor to select the backup device, channel number, backup speed, starting data and time, ending date and time, and then select to start the backup, and system will display the backup processing. If the user does not connect the backup device correctly, the system will display: **No backup disk**; if the device is full, it will display: **Disk is full**. During the backup, it will display the time. For the backup device you can choose among HDD/USB/CDR. If HDD is chosen as the device, the backup speed can be selected between **Fast** and **Normal**. If the backup speed is **Fast**, system will stop the current recording.

|                |           |
|----------------|-----------|
| BACKUP RECORDS |           |
| BACKUP DEVICE  | CDR       |
| CH             | 1         |
| BACKUP SPPD    | FAST      |
| STARTING DATE  | 2003-3-18 |
| STARTING TIME  | 9 : 18AM  |
| ENDING DATE    | 2003-3-18 |
| ENDING TIME    | 10 : 18AM |
| BACKUP         | ADD START |

### Delete backup

Select the backup device you want to delete the records from first, and then confirm the deletion by selecting

|                  |        |
|------------------|--------|
| DELETE BACKUP    |        |
| DEVICE           | HDD    |
| SURE TO DELETE ? |        |
| OK               | CANCEL |

## 6.4.5 LOGOUT

Press **ENTER** to logout. To enter the menu again, password is needed.

|                 |        |
|-----------------|--------|
| SURE TO LOGOUT? |        |
| OK              | CANCEL |

## **Chapter 4    Operation Over Network**

There are two ways to access the DVR over the network: Using Microsoft Internet Explorer (IE) or Mace Remote Client Software.

Using IE, no special software needs to be installed on the PC. A web control unit will be downloaded to the computer automatically the very first time a connection to DVR is initiated.

The Mace Remote Client Software needs to be installed properly to use the second option. But the graphical user interface menu items are identical. The Remote Client software is included on the utility CD in the accessory box, or you can directly download/install from <http://www.mace.com/>, under **Support**.

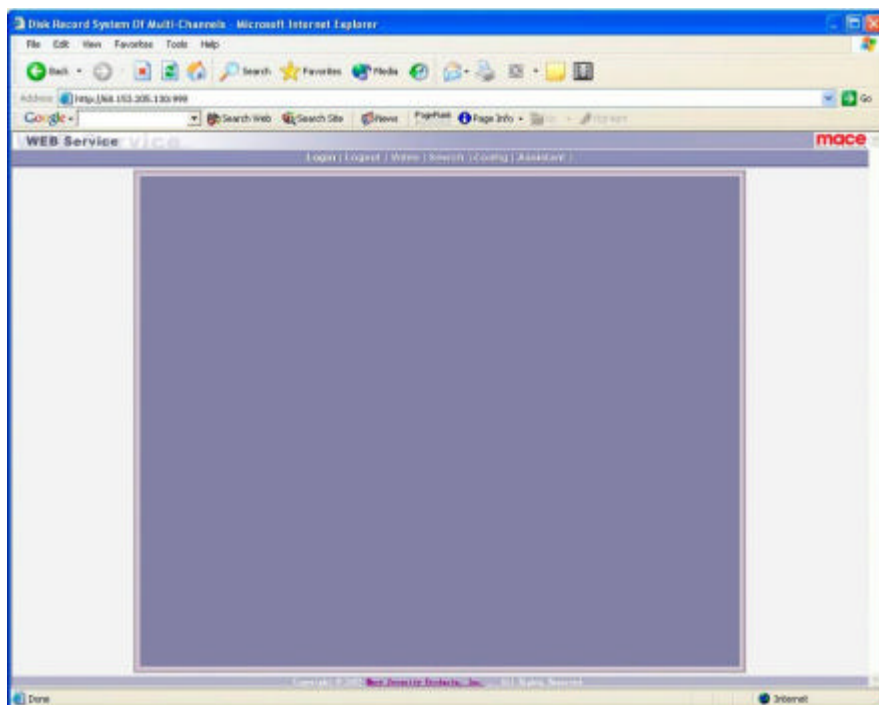
- 1. Setting up the Client End**
- 2. Login and Logout**
- 3. Operation of the Right Click Menu Items**
- 4. Record Search**
- 5. System Configuration**
- 6. Assistant**

## 1. Setting up the client end

No special software is needed to install on the DVR, PC or other devices in order to access DVR using the IE browser. If the IE responds back “Page Cannot Be Displayed” or “Server not Found”, check your network connection carefully.

## 2. Login and logout

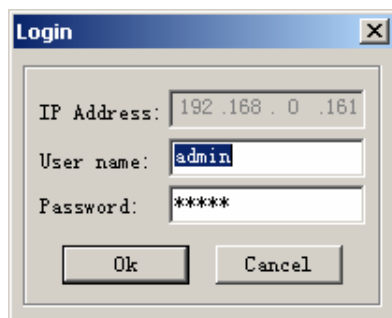
Please input the IP address of the DVR in the address column of the browser. Take the DVR's IP address: 192.168.0.168 as an example: Input <http://192.168.0.168>. Note: The first time you visit this DVR the system will pop up the dialogue box to ask whether you accept ActiveX or not, and please choose Yes, and then the system will install the software automatically.



4-1

On the remote monitor display, there is a monitor video window, with selection choices: [login](#), [logout](#), [video](#), [search](#), [config](#) (system setting), [Assistant](#) (assistant setting) and so on.

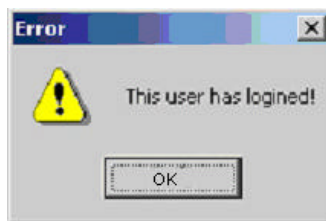
**Login** : Please select **login**, and the following dialogue box(4-2) will pop up.



4-2

Input the username and password. There are three types of Users: Administrator, User, and Guest. For detailed information please refer to **User manage** in Assistant setting. The default username is admin, & password is admin. For Security purposes, please change the administrator password.

If after the input of the username and password, the following box pops up (4-3). The system is indicating that some other user has used this name and is logged in. Please use another name to log in.



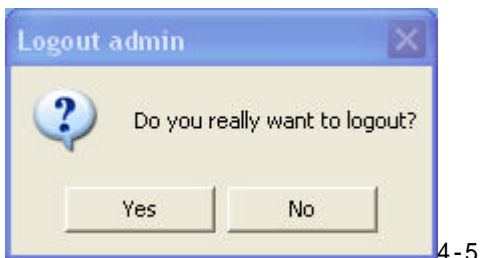
4-3

If after the input of the username and password, the following box(4-4) pops up. The system is indicating that the name or Password input is incorrect, and to please try again.



4-4

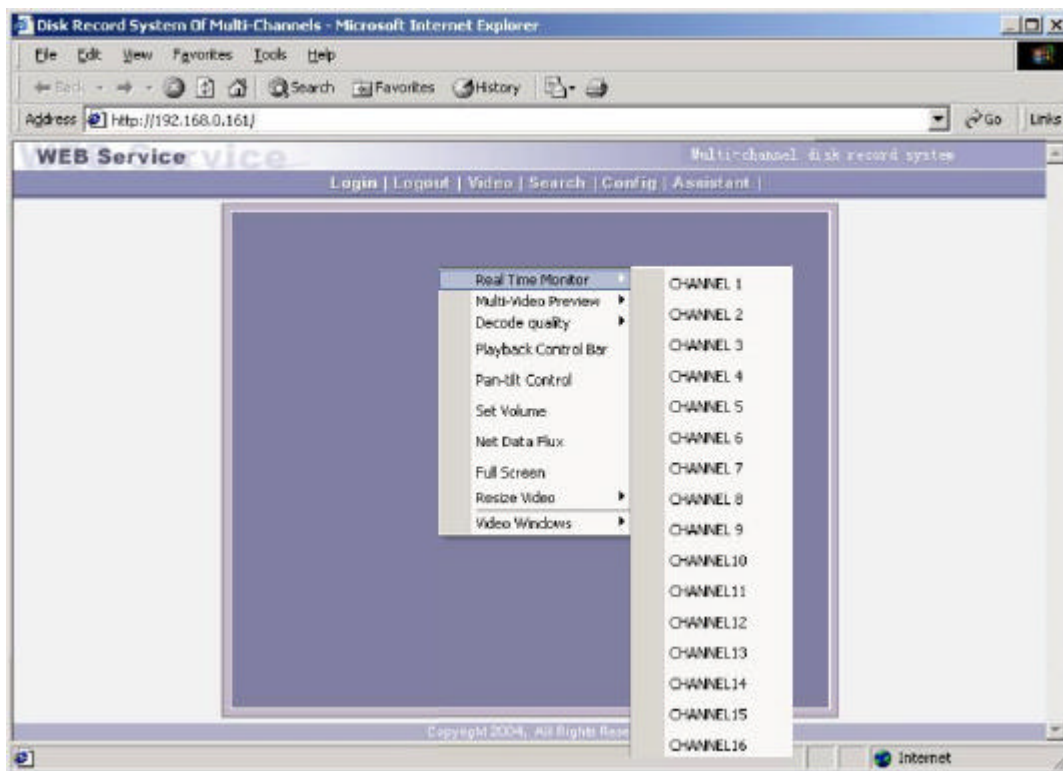
**Log out:** If the logged in user needs to log out, please click logout button. The popup dialogue box appears. Please choose Yes. See (4-5).



4-5

### 3. Operation of the Right Click Menu Items

After you log in as Administrator, the buttons like login, logout, search, config & Assistant are activated. Click the right mouse key or **Video** and the following interface Display (4-6):

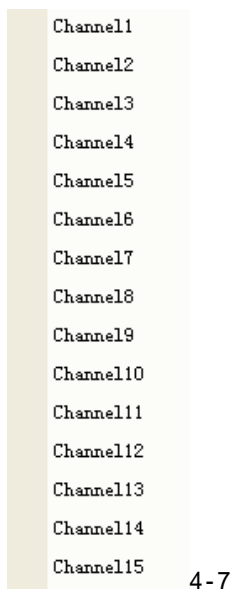


4-6



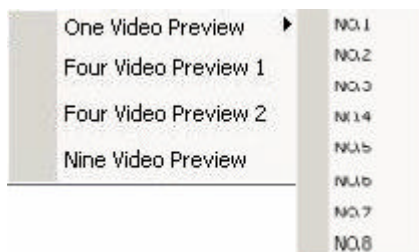
The right key menu includes: Real time monitor, Decode quality, Multi-Video Preview, Playback control bar, Pan-tilt control, Set volume, Net data flux, Full screen, Resize video and so on.

**Real time monitor** Among the displayed channels (4-7), you may select the channel you want to see.



4-7

**Multi-Video Preview** Support 1,4,9,16 windows preview simultaneously for choose(4-8)



4-8

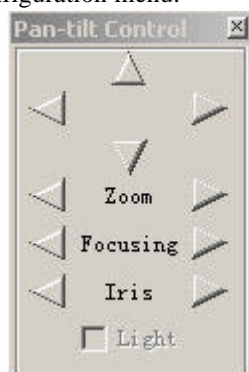
**Decode quality** 4 levels decode quality for choose(4-9)



4-9

**Playback control bar** Please refer to **Records playback**.

**Pan-tilt control** The Arrows Control the moving direction of the pan-tilt and the zoom, iris & focus of the lens. See(4-10). Press the related buttons to control. Note: Before the PTZ will operate you must set the correct protocol of the pan-tilt on the DVR configuration menu.



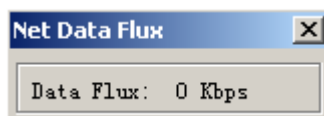
4-10

**Set volume** Audio volume is User selectable... User can drag the bar to adjust or select Mute to cancel the sound. (4-11)



4-11

**Net data flux** Display the statistics of the network transmission data flux. When there is no network data transmission the statistics shows zero.(4-12)

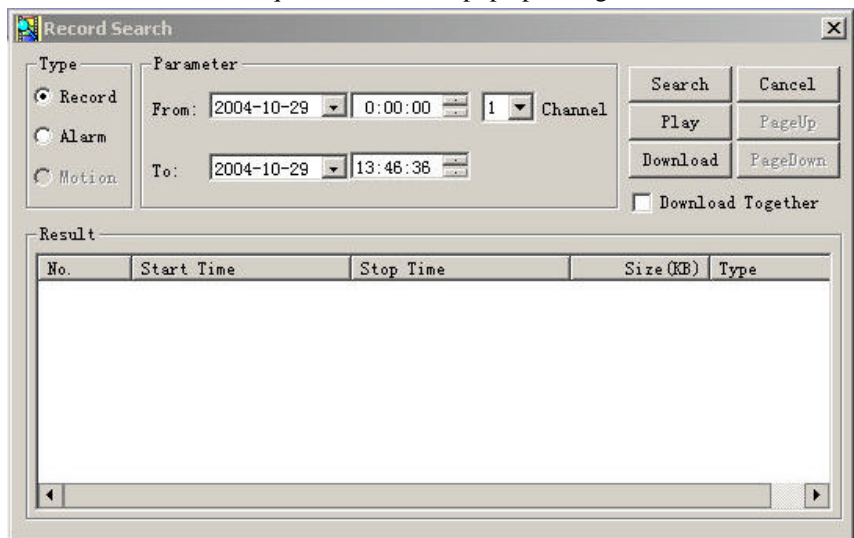


4-12

**Full screen** There are two ways to view full screen monitor: One is to double click the window directly; the other is to select Full screen among the right click menu items. During multi-window state, choose one of the windows and double click it for full screen display.

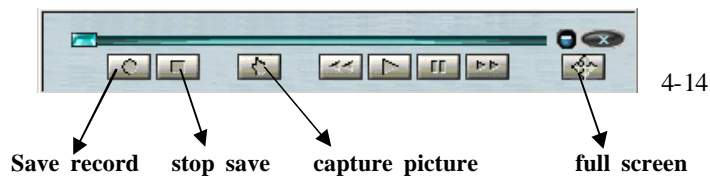
#### 4. Records Search and Playback

Click on search, and then fill in the required info on the pop up dialogue box for the records search.



4-13

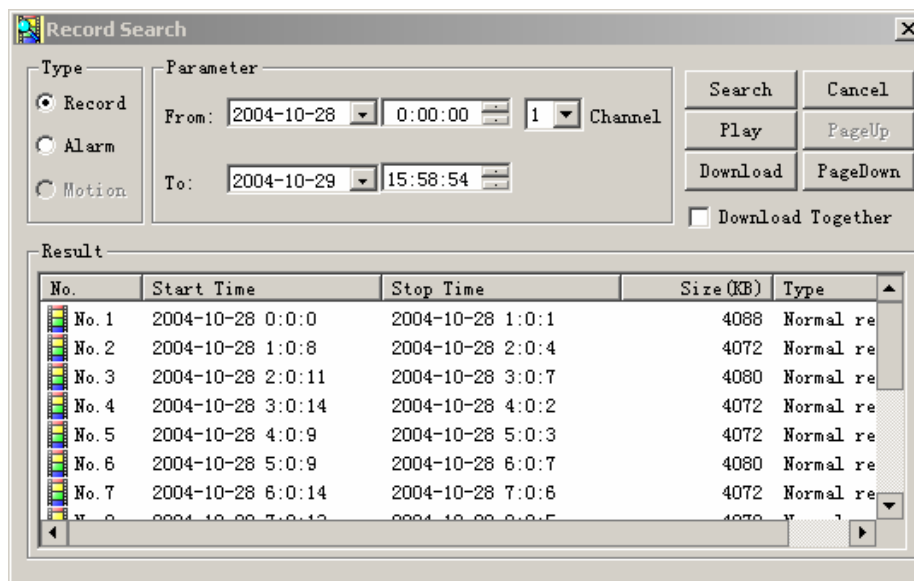
Input From and To recording time, channel number and searching type ( Record or Alarm ) , and the records during the searching time will show in the dialogue box (If only input the From time only it will show the records in 24 hours). Click **Pageup** and **Pagedown** to display the next records. Double click the wanted record, and system will play the selected record, which can be played at full screen. At the same time you can also perform records download, and the record will be automatically saved in your PC's "C:\Download" folder.



4-14

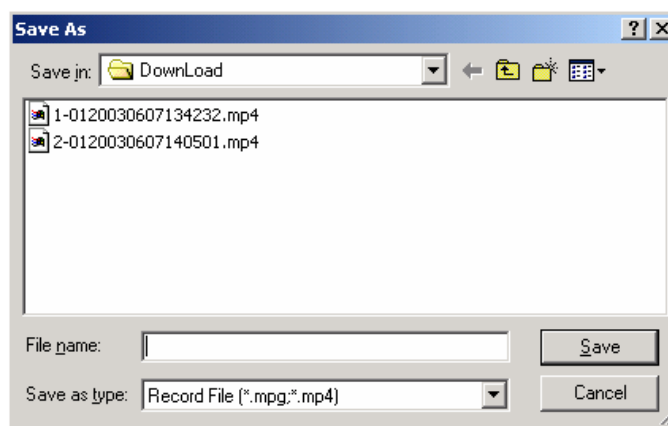
During the playback, you can operate the buttons in the playback bar such as: save record, stop save; capture picture, fast play, pause, and full screen. During the playback on the video screen, the video can indicate the channel number, time and data flux of the record.

**Download** See 4-15, select the desired record and click **Download**.



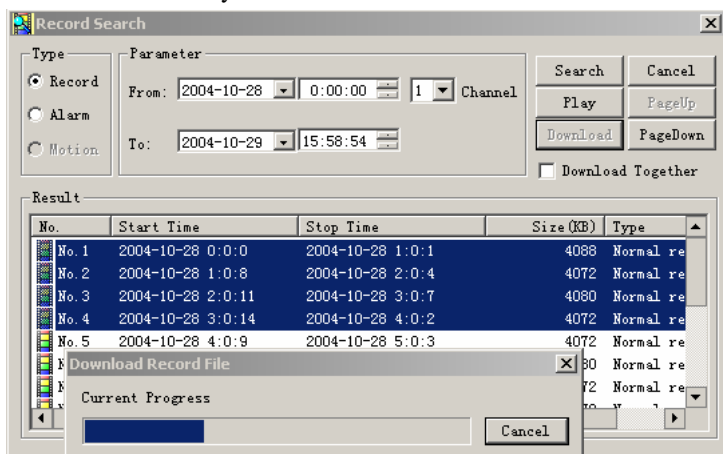
4-15

The software supports the downloading of several records simultaneously. The default format of the downloaded records' name is: file name, Channel #, date, time, extension name is .mp4 (Example: a-0120021205071028.mp 4, 01 means channel 1, 20021205 means December 5<sup>th</sup> of 2002, 071028 means 7 o'clock 10 minutes 28 seconds).



4-16

To Save a File located in the Search Record Display, Select File, press the Download button. A Save Window opens. Input the file name and choose **Save**. The screen shows the processing of the downloading until the completion. (User can use the Ctrl key to double choose several records and down load as a whole file as well)



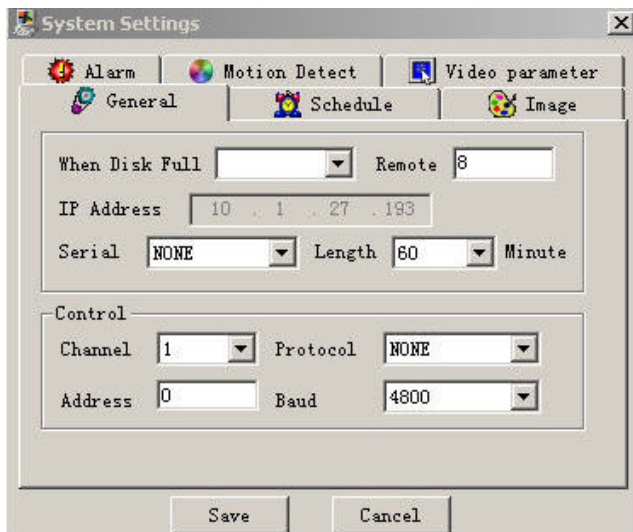
4-17

## 5. System Configuration

Click **Config** button and a pop up the dialogue box appears. There are **General**, **Schedule**, **Image**, **Alarm**, **Motion Detection**, **Video parameter** tabs of the five menu configuration screens.

Note: The grayed part of the menus that cannot be changed can only be modified directly at the DVR.

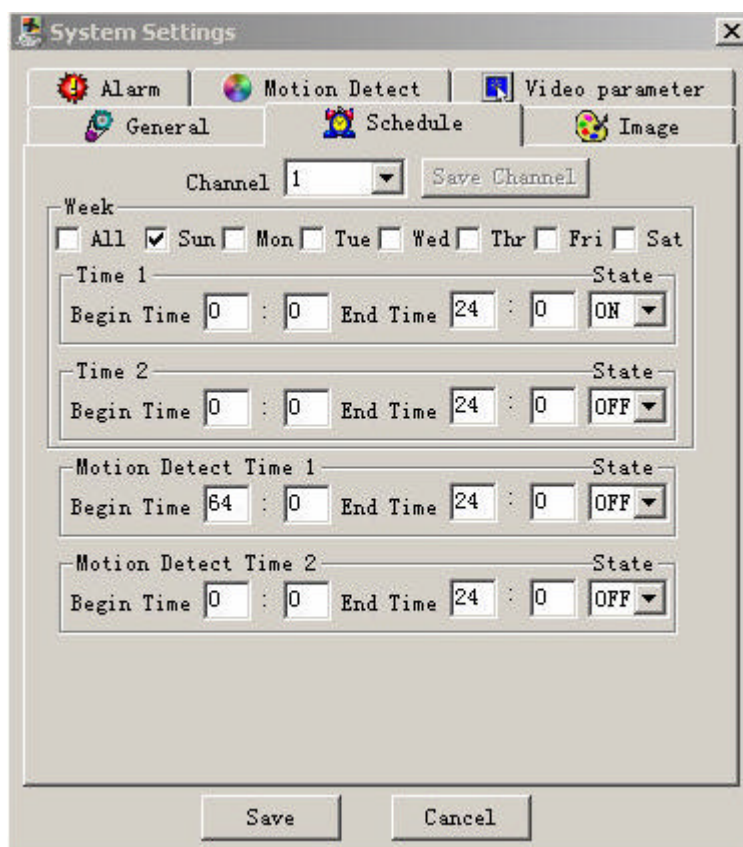
**General**: Include the recording length setting. In Control Column select the channel number and its PTZ decoder's protocol, as well as the related address for the control of the PTZ Camera.



4-18

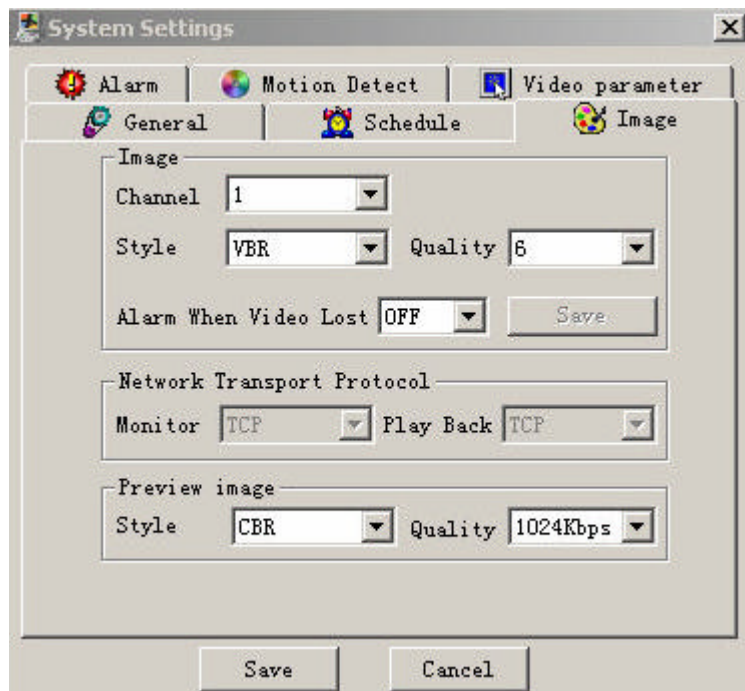
**Schedule** 4-19 Allows the User to select the different channels and dates to perform the schedule recording and can set 2 different periods of time one day. The set time in **Time 1** and **Time 2** are independent with the set time in Motion detection. There is no week setting for Motion detection.

**Motion detect time:** User can set two time periods of the motion detection, **time** and the **state** of the motion detection so as to activate the recording during the time period. Only when Motion Detection is On, the set time period takes effect. If the states of the two time periods are both Off, the system will not record in motion detection.



4-19

**Image** With this menu, adjustments can be made for image quality and protocols of each channel.



4-20

**Style:** Among the options of the coding styles there are: VBR (variable baud rate), CBR (consistent baud rate), f/10s, f/5s, f/2s, 1f/s, 2f/s, 3f/s, 4f/s, 5f/s, 6f/s, 8f/s, 10f/s, 12f/s, 15f/s & 20f/s. Select one of the styles and save. For VBR and selectable frames there are 1, 2, 3, 4, 5 & 6 levels of image quality. Please choose the desired level.



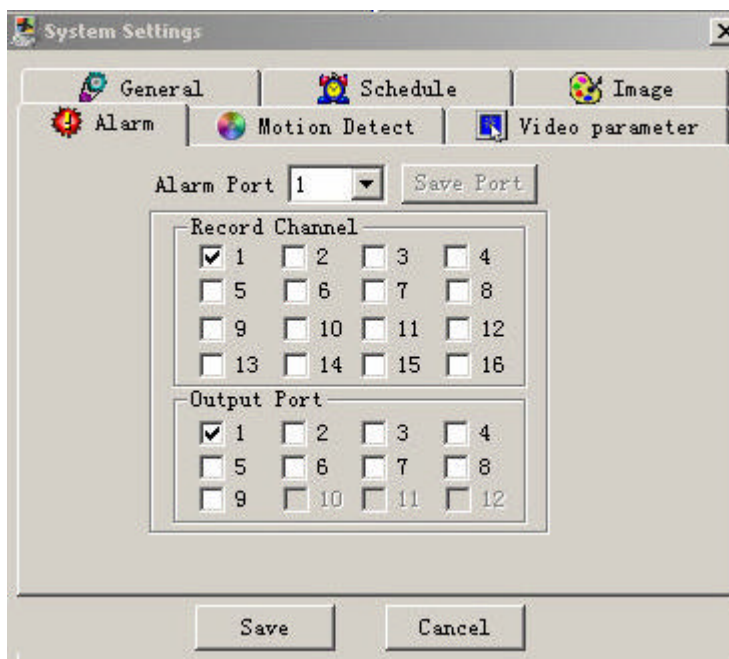
4-21

Level 1: data flux 128Kb/S, Level 2: 256Kb/S, Level 3: 384Kb/S, Level 4: 512Kb/S, Level 5: 768 Kb/S, Level 6: 1Mb/S.

The different data flux demands on the related bandwidth and the transmission image quality is also different. Among them, Level 6 demands on the highest bandwidth and has the best image quality.

**Net transmission Protocol-** There are TCP and Multicast (two types). Multicast protocol: the 1<sup>st</sup> user logged in can control power, can view the image at will and other users can only follow this user to view the image. 5 users are allowed to view at the same time. TCP protocol: each user can view the image at will. According to the need, users can choose between different protocols. If viewing is through the Internet you must choose TCP. Up-to 5 users are allowed to view at the same time.

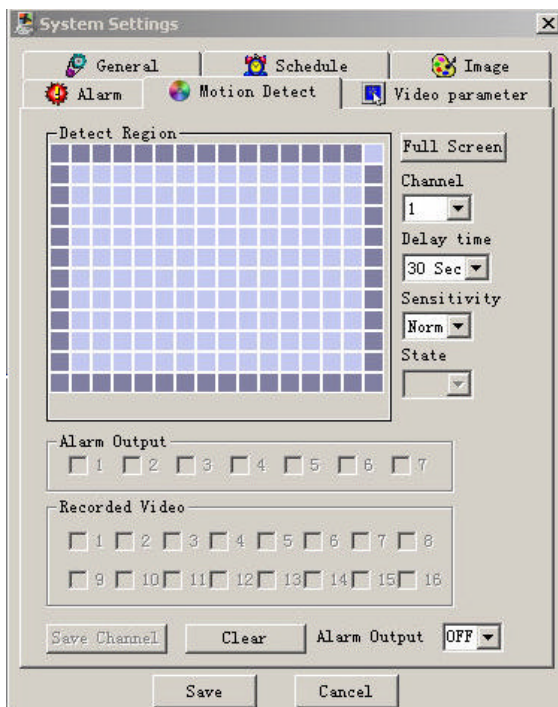
**Alarm** When there are alarm input signals, the user can select the recording channel and the output port for the actual need



4-22

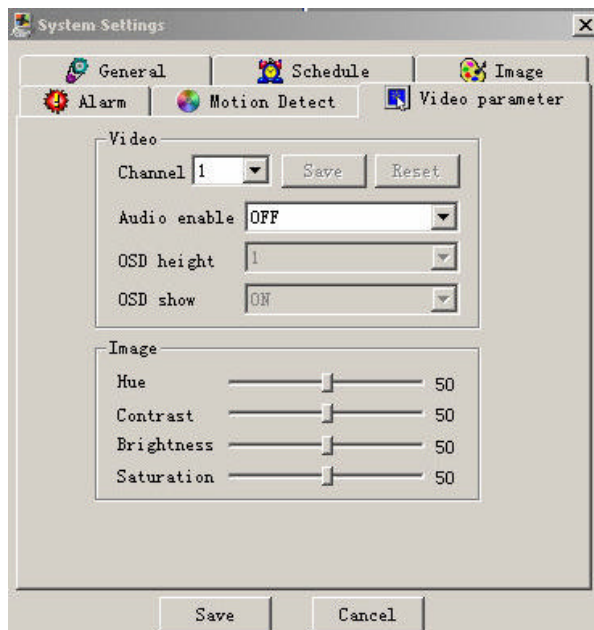
**Motion detection** When the user sets the time period for Motion Detection, the motion detection will take effect. The blue area is the selectable motion detection area. The User can move the dialogue box to choose the correct area and can also set the sensitivity of the area due to the need. Click **Full screen** or press right key on the area to display the motion detection area in full screen mode. After setting the area the user can **Save channel** or **Clear** the area. The Alarm output field allows you to activate an output relay. The default port is 2. If you want to set this channel fully as motion detection recording, you have to turn off the **schedule** recording of this channel.





4-23

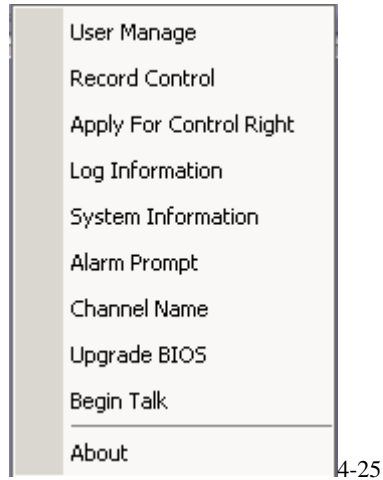
**Video parameter** User can adjust the video Hue, Contrast, Brightness, Saturation and so on.



4-24

## 6. Assistant

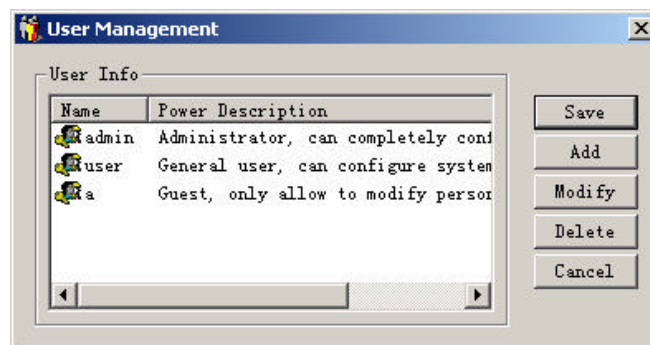
**Assistant** Click on Assistant setting, as following, there are User manage , Record control , Apply for control right , Log information , System information, Alarm Prompt, Channel name , Upgrade BIOS, etc.



4-25

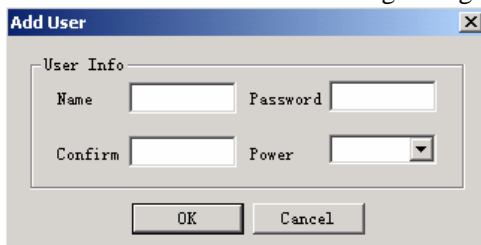
**User manage:** displays the user (Log-In) information of the DVR. The buttons to the right can let an administrator user save, add, modify, delete and cancel the information.

Three levels of user types: Administrator fully set the system, modify & Use the system; User can not set system parameters or modify other users' information. This User can select and Operate existing programming; Guest can not set system parameter and records search, can only modify personal information.



4-26

**Add** : Click Add to show the following dialogue box(4-27) :

A dialog box titled "Add User" with a close button (X) in the top right corner. It contains a "User Info" section with four input fields: "Name", "Password", "Confirm", and "Power". The "Power" field is a dropdown menu. At the bottom are "OK" and "Cancel" buttons.

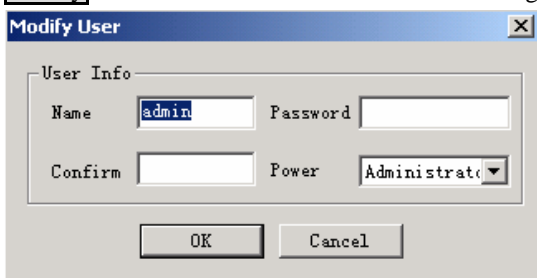
| User Info |                      |
|-----------|----------------------|
| Name      | <input type="text"/> |
| Password  | <input type="text"/> |
| Confirm   | <input type="text"/> |
| Power     | <input type="text"/> |

OK Cancel

4-27

The Admin User can add user information in this dialogue box, and assign user power level. Note: There is only one administrator allowed.

**Modify** : Select this button to show the following. User can modify the filled-in information(4-28).

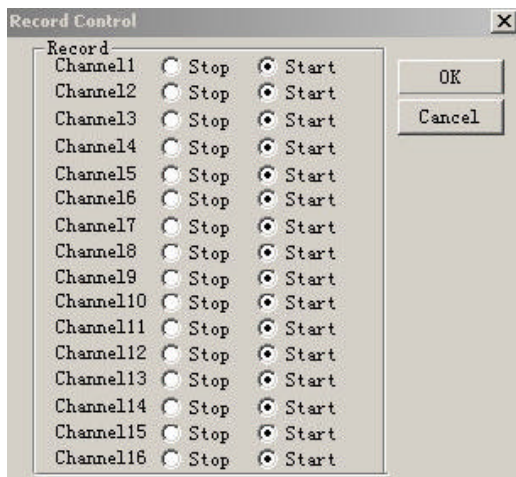
A dialog box titled "Modify User" with a close button (X) in the top right corner. It contains a "User Info" section with four input fields: "Name" (containing "admin"), "Password", "Confirm", and "Power" (a dropdown menu showing "Administrator"). At the bottom are "OK" and "Cancel" buttons.

| User Info |  |
|-----------|--|
| Name      | <input type="text" value="admin"/>         |
| Password  | <input type="text"/>                       |
| Confirm   | <input type="text"/>                       |
| Power     | <input type="text" value="Administrator"/> |

OK Cancel

4-28

**Record control** : Manually control the recording of each channel.

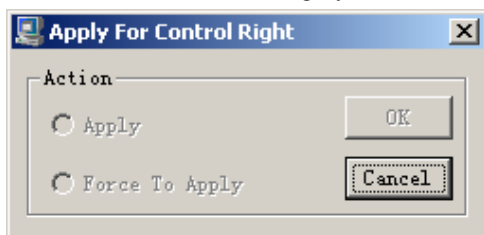
A dialog box titled "Record Control" with a close button (X) in the top right corner. It contains a list of 16 channels, each with "Stop" and "Start" radio buttons. The "Start" button for each channel is selected. At the bottom are "OK" and "Cancel" buttons.

| Record  |
|---|
| Channel1 <input type="radio"/> Stop <input checked="" type="radio"/> Start  |
| Channel2 <input type="radio"/> Stop <input checked="" type="radio"/> Start  |
| Channel3 <input type="radio"/> Stop <input checked="" type="radio"/> Start  |
| Channel4 <input type="radio"/> Stop <input checked="" type="radio"/> Start  |
| Channel5 <input type="radio"/> Stop <input checked="" type="radio"/> Start  |
| Channel6 <input type="radio"/> Stop <input checked="" type="radio"/> Start  |
| Channel7 <input type="radio"/> Stop <input checked="" type="radio"/> Start  |
| Channel8 <input type="radio"/> Stop <input checked="" type="radio"/> Start  |
| Channel9 <input type="radio"/> Stop <input checked="" type="radio"/> Start  |
| Channel10 <input type="radio"/> Stop <input checked="" type="radio"/> Start |
| Channel11 <input type="radio"/> Stop <input checked="" type="radio"/> Start |
| Channel12 <input type="radio"/> Stop <input checked="" type="radio"/> Start |
| Channel13 <input type="radio"/> Stop <input checked="" type="radio"/> Start |
| Channel14 <input type="radio"/> Stop <input checked="" type="radio"/> Start |
| Channel15 <input type="radio"/> Stop <input checked="" type="radio"/> Start |
| Channel16 <input type="radio"/> Stop <input checked="" type="radio"/> Start |

OK Cancel

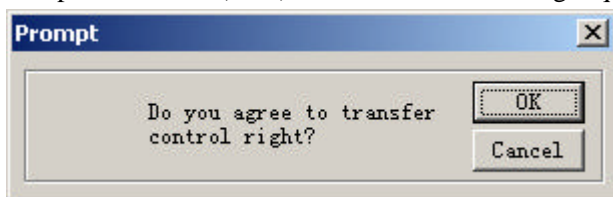
4-29

**Apply for control power** : Web client software can supply the login of multiple users. If you want to have the control, you can click this option and confirm to have the control. (4-30). If a new user wants to have the control, the new user has to apply and gain the authorization of the existing user with control. If the logged-in users are all normal users, the first logged-in user gains the control power automatically. If a higher lever user logs in later, they can gain the control power automatically. If only one user logs in or the logged-in user is the user with control, the box is gray.



4-30

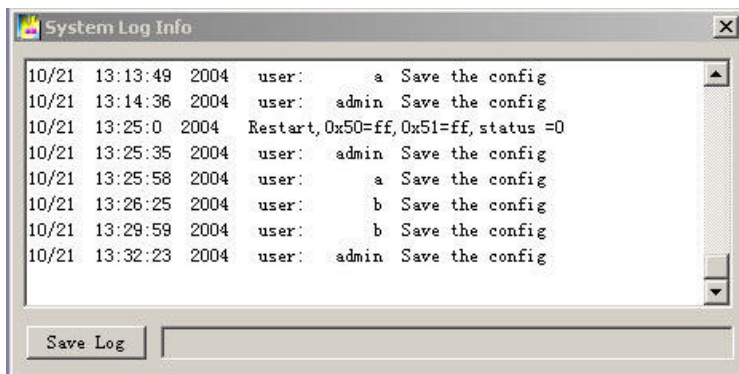
The picture below (4-31) is the other user sending request to the existing user with control.



4-31

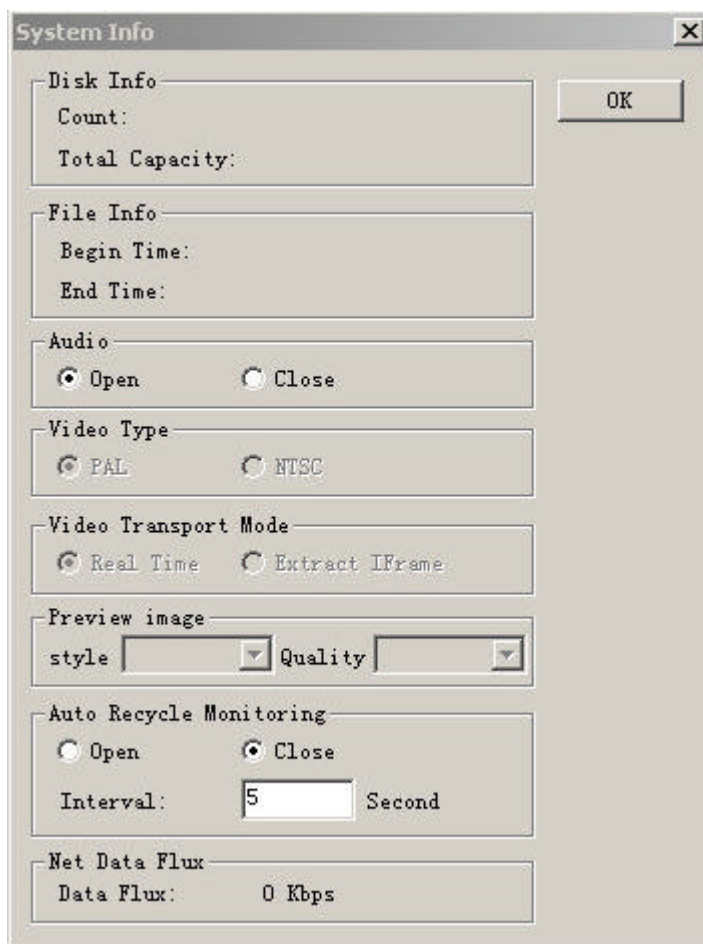
**Log information** : The operations on the system are all recorded in log information.

If choose **Save Log**, the Log will be saved automatically in the root directory of your PC's "C:\" as a text file (e.g.: C:\ 10.1.27.193-log.txt)



4-32

**System information** :Check the basic information of the system. When sound is not needed, you can turn off the audio. Due to the bandwidth considerations, the user can select the different Video transport modes, Video type PAL or NTSC has to be selected correctly, 110vac, 60hz is normally NTSC, 220vac, 50hz is normally PAL If Auto recycle monitoring is on, system will sequence between all the channels automatically with a user selectable dwell time. **Net data flux** :during real-time monitor will display the statistics of the network data flux.

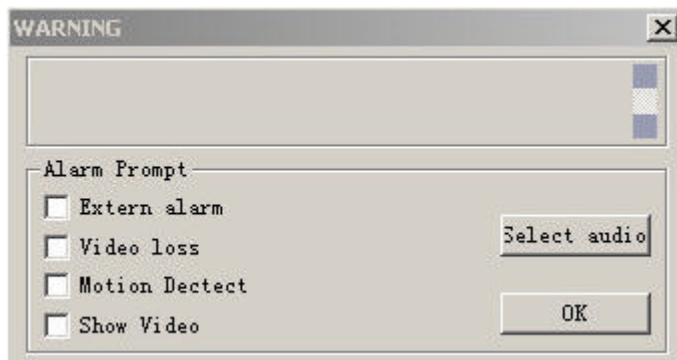


The screenshot shows a 'System Info' dialog box with a close button (X) in the top right corner. The dialog contains several sections with expandable/collapsible headers:

- Disk Info**: Contains 'Count:' and 'Total Capacity:' fields. An 'OK' button is located to the right of this section.
- File Info**: Contains 'Begin Time:' and 'End Time:' fields.
- Audio**: Contains two radio buttons: 'Open' (selected) and 'Close'.
- Video Type**: Contains two radio buttons: 'PAL' (selected) and 'NTSC'.
- Video Transport Mode**: Contains two radio buttons: 'Real Time' (selected) and 'Extract IFrame'.
- Preview image**: Contains two dropdown menus labeled 'style' and 'Quality'.
- Auto Recycle Monitoring**: Contains two radio buttons: 'Open' and 'Close' (selected). Below them is an 'Interval:' field with the value '5' and the unit 'Second'.
- Net Data Flux**: Contains a 'Data Flux:' field showing '0 Kbps'.

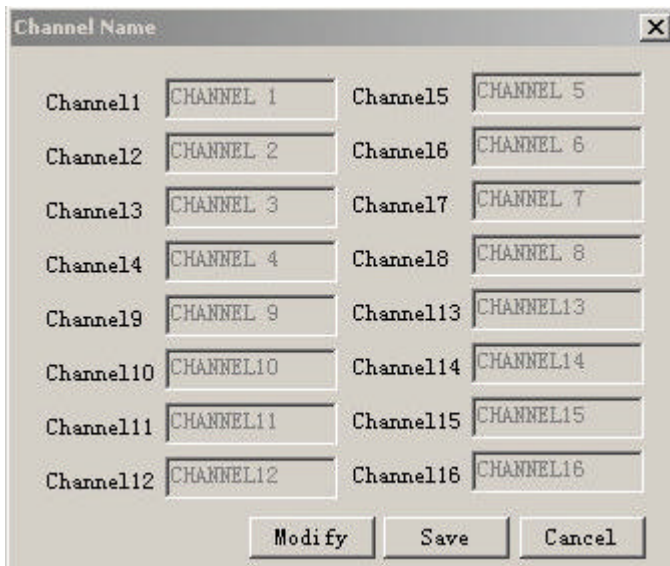
4-33

**Alarm prompt** : Different sound warning for the certain Alarm input can be chosen according the user's needs(4-34).



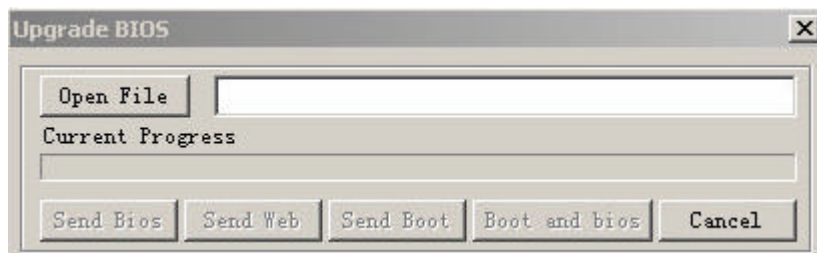
4-34

**Channel name** : Cameras can be named for each channel. No more than 12 Characters. The revised channel names will be displayed on the screen. The default setting of the channel name is Channel No.1 to Channel No.16



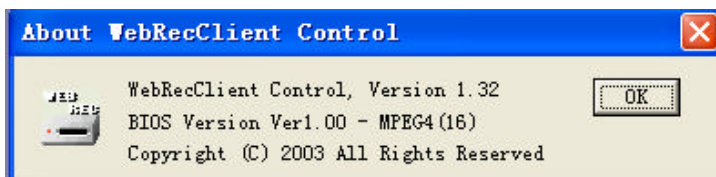
4-35

**Upgrade BIOS** : Administrator can upgrade the BIOS program remotely. A Browse window will pop up for File Information. Open the related BIOS or Web file( example: DVR1604.BIN or Multi-webfile.bin, and click on Send. After the upgrading, system will automatically reboot to take on the new system software.



4-36

**About** : Version information – This palette displays information about the DVR and may be vital when contacting your vendor for Support.



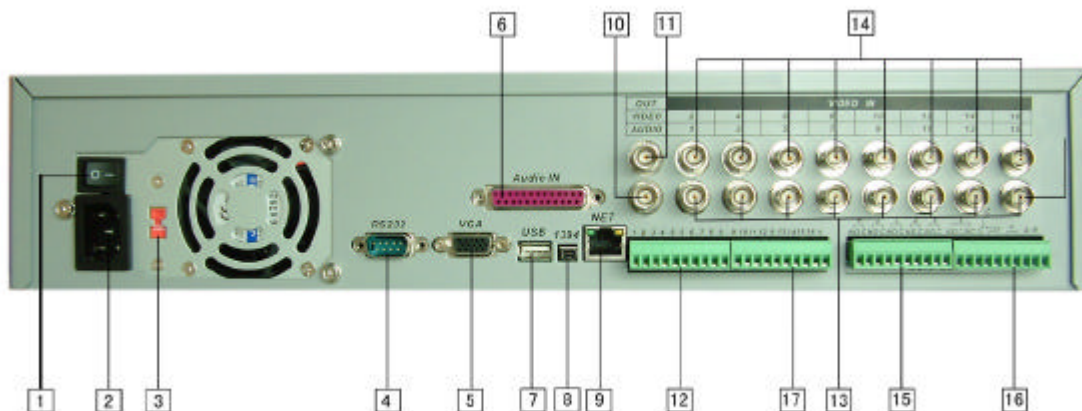
4-37

## **Chapter 5    System Connections**

- 1. DVR Rear View**
- 2. RS232 Port Connection**
- 3. 10-pin port connection**
- 4. RS-485 Port Connection**



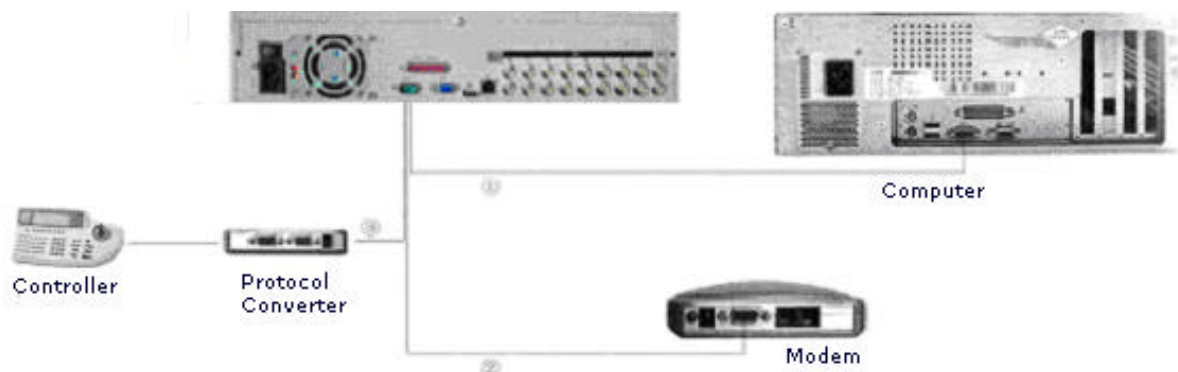
## 1.DVR Rear View



- |                                    |                                       |                           |                     |
|------------------------------------|---------------------------------------|---------------------------|---------------------|
| 1、 power switch                    | 2、 power plug                         | 3、 220V/110V shift switch | 4、 RS232 connection |
| 5、 VGA connection                  | 6、 Audio input                        | 7、 USB port               | 8、 1394 connection  |
| 9、 NET network connection ( RJ45 ) | 10、 Audio output                      | 11、 Video output          |                     |
| 12、 Alarm-RS485 connection         | 13、 Video input                       | 14、 Video input           |                     |
| 15、 Alarm output                   | 16、 Alarm output & control connection | 17、 Alarm input           |                     |

**Network connection note:** When connecting directly to the network card of a computer, please use CAT-5 Crossover Cable; when connecting to a LAN or Router use CAT-5e cable.

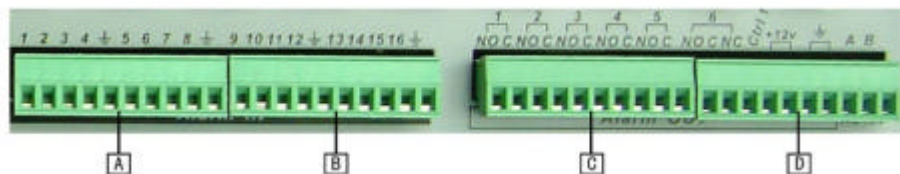
## 2. RS232 Port Connection



**Note:** The connection for DVR system software upgrading or debugging through the serial port  
 The connection for dial-up login through MODEM  
 The connection for DVR control through keyboard

## 3. 10-pin port connection

If you want to control pan-tilt, lens and process the relay of the alarming signals by the DVR, the 10-pin port can realize. The four 10-pin port can control various pan-tilt decoders, and the specific type of the decoder can be selected from the Control of the System setting in the menu. On plug the foot's serial number is marked.



A: Alarm input: ALARM1~ALARM8

B: Alarm input: ALARM9~ALARM16

C: Alarm OUTput: ALARM1~ALARM5

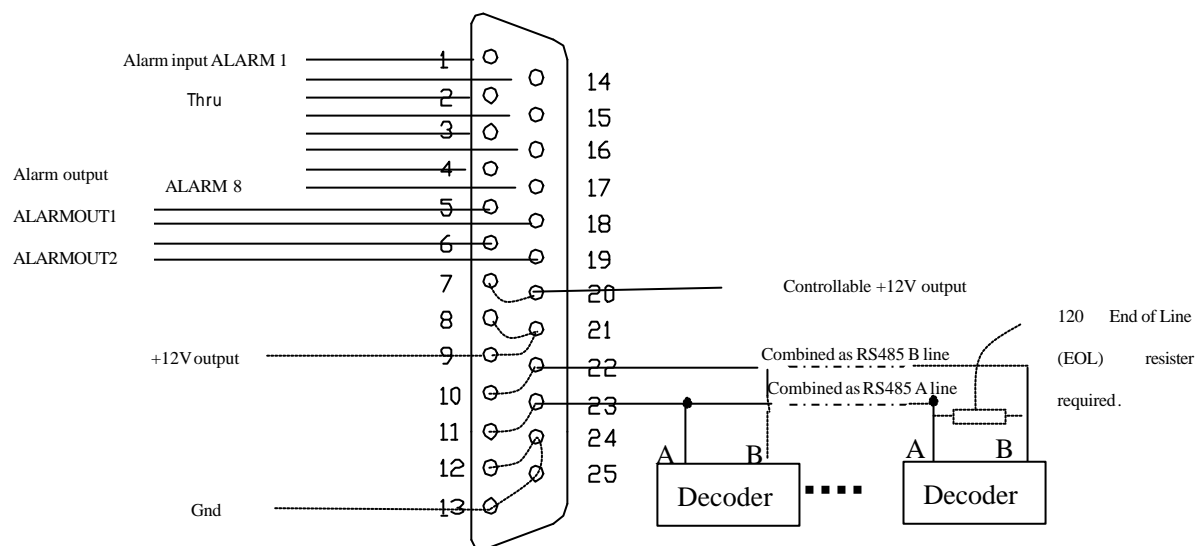
D:ALARM6 output and 12V controllable pressure AB line port

#### 4. RS-485 port connection

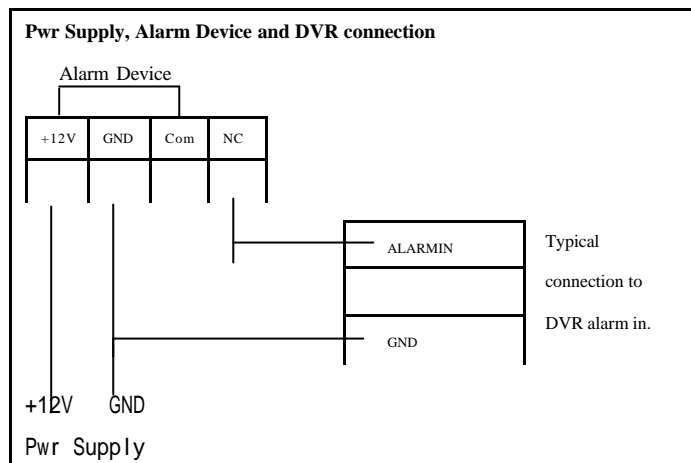
If you want to control Camera pan-tilt-zoom (P/T/Z) or activate the DVR Output relay, the 25-pin RS485 connection must be used. See detail below.

The RS485 port connection can control various (P/T/Z) Cameras, and the specific model or protocol can be selected from the Control Menu in System settings.

The DB25 pin outs are marked below. The definition of the pin outs are as follows: The broken line in the graph indicates inside connection )



- Pins 1,14,2,15,3,16,4,17 connects to alarm input: ALARM1~ALARM8
- Pins 5 & 18 = OUTPUT Relay 1 - 6 & 19 = OUTPUT Relay 2 Each Relay (normally open):
- Pins 7&20 = OUTPUT 3 is a controllable +12V output.
- Pins 8, 9 & 21 are +12V power output, Use for Low current items only such as Relays and Alarm Devices.
- Pins 10 & 22 are the B line of RS485, Pins 11 & 23 are the A line of RS485;
- Pins 12, 13, 24 & 25 are Ground (Gnd).

**- Connection of the alarm input:****· Instruction of the alarm input end:**

8 channel alarm inputs with NO or NC alarm (normally open or normally close type). The power out of the alarm sensor can be provided by the DVR (Low current only) or (External alarm power supply)

**·Instructions for alarm device power from DVR:**

N/O or NC alarm outputs refer to information below.

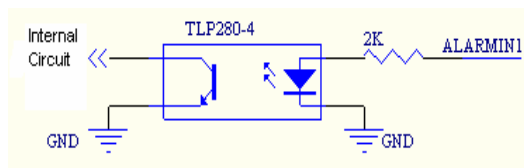
**·Instruction of the controllable +12V**

Available for Low Current Power to Alarm devices.

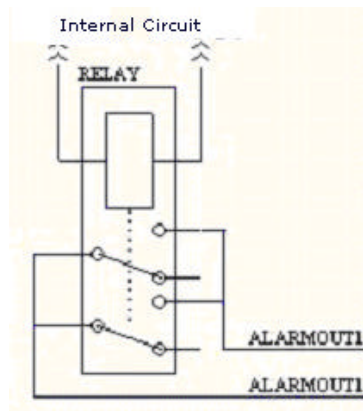
**·Instruction of RS485 A & B line:**

Used to connect the A and B line of the PTZ units.

·Module sketch of the alarm input end



·Module sketch of the alarm output end



· Relays' parameter of the alarm output end

|                            |                                   |                                 |
|----------------------------|-----------------------------------|---------------------------------|
| Model: G6H                 |                                   |                                 |
| Relay Material             | Silver                            |                                 |
| Rating, resistance & load. | Rated switch capacity             | 30VDC 1A, 125VAC 0.5A           |
|                            | Maximum switch power              | 62.5VA 33W                      |
|                            | Maximum switch voltage            | 125VAC, 110VDC                  |
|                            | Maximum switch Current            | 1A                              |
| Insulation                 | Pins with same polarity           | 750VAC 1minute 50/60Hz          |
|                            | pins with different polarity      | 1000VAC 1minute 50/60Hz         |
|                            | between relay and loop            | 1000VAC 1minute 50/60Hz         |
| Surge voltage              | between relays with same polarity | 1500V (10 × 160us)              |
| Length of open time        | 3ms max                           |                                 |
| Length of close time       | 3ms max                           |                                 |
| Longevity                  | Mechanical                        | 100 × 10 <sup>6</sup> 次 (10Hz)  |
|                            | Electric                          | 200 × 10 <sup>3</sup> 次 (0.5Hz) |
| Temperature                | -40~+70                           |                                 |

## **Chapter 6    Serial Port Operations**

- 1.    System Setting**
- 2.    Software Upgrade**

## 1 . System Setting of the Terminal

The system's operation can also be controlled through the RS232 port. The specific operation is as follows: First, copy "Terminal" and new DVR system software to the computer. Connect the computer with the DVR via the RS232 port. Run "Terminal" program and create the connection between the computer and the DVR.

The settings information for the connection is: Baud rate— 115200bps

Data bit— 8 bits

Stop bit— 1 stop

Check — no parity

Control on data flow— no

You can log in by username **admin** (default user with administrator) for the serial port login.

### Login steps:

Press any key to enter the login interface which displays the following:

**Username: admin**

Input the name; press the "enter" key. Then, input the password as follows:

**Password: admin**

If the username and password are correct, the system will allow entry via the serial port. The detailed functions are the same as the menu setting.

## 2. Serial port upgrading operation

After connecting with the above operations, please continue with the below operation:

Press any key to enter login interface as following:

Username - **admin**

Enter username and press Enter. Enter the password as follows:

Password - **dahua**

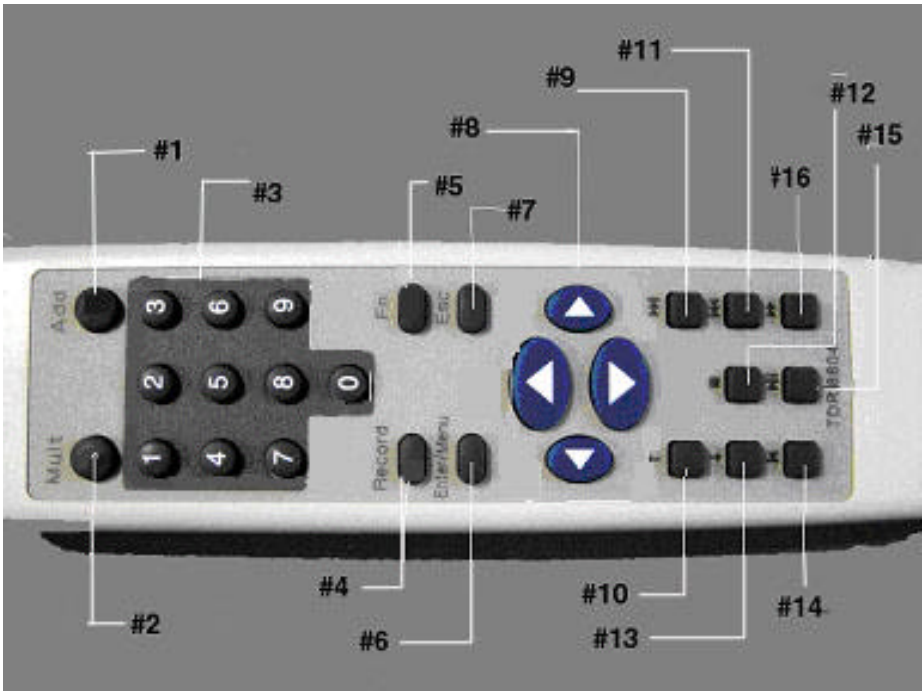
System enters into **DEBUG** state, and input BIOS. Press Enter.

Click Communication in the menu Field——Send file, and open upgrading program file (DVR0804\_NTSC.BIN——8 Channel DVR BIOS program, please complete this operation within 20 seconds, otherwise a Time out occurs). System begins to upgrade automatically and after the upgrading is completed, a system reboot will occur.



# Appendix 1      Remote Control Unit

Remote controller – Operates like On-Screen Buttons



|                    |                        |                   |                     |
|--------------------|------------------------|-------------------|---------------------|
| 1. Address         | 2. Multi Screen        | 3. Camera Select  | 4. Record           |
| 5. Function Key    | 6. Enter/Menu          | 7. ESC (Cancel)   | 8. Direction Arrows |
| 9. Jump to Next    | 10. Previous Selection | 11. Jump Backward | 12. Stop            |
| 13. Next Selection | 14. Reverse            | 15. Play/Pause    | 16. Fast Forward    |

## Appendix 2      Frequently Asked Questions

### 1.    After Power up, “No HDD” message is flashing on the local monitor

This is an indication that either the harddisks are not installed correctly or no harddisk is installed at all. Refer to Appendix 3 **Hard disk installation**. Also inside the DVR there is a yellow sticker with instructions on harddisk installation.

### 2.    Remote control does not work

Most of the cases fall into two reasons: battery problem or address mismatch.

Battery Problem: Make sure that two good AAA type batteries are installed.

Address Mismatch: one remote control unit can be used to control multiple DVRs. Each DVR is programmed to accept control signal from one of 256 channels. This setting can be found under MENU->SYSTEM SETTING ->GENERAL-> REMOTEADDR. To change the output channel of the remote control unit to match one particular DVR (represented by Channel # 1 to 256), aiming at the DVR, press the “ADD” button which is located at the right upper corner of the remote control. There should be a message displaying on the local monitor “ADDRESS \_ \_ \_”. Use the remote control’s numeric keys to input the DVR’s channel number and press the ENTER button.

If you cannot get the “ADDRESS \_ \_ \_” message and the connection of the local monitor is correct, please call your vendor for support.

### 3.    When I power down the DVR, why do I have to press and hold the power button for 4 seconds?

First of all, using the front orange power button to shut down the DVR will make sure the DVR properly finish and close all its operation and file system, thus eliminate many possible causes for harddisk errors leading to data loss. This is the correct way of powering down a DVR.

Secondly, requiring holding the button for over 4 seconds is to avoid accidental shutdown of the DVR due to unintended touch of the button. You can make the shutdown more secure (i.e. avoid unauthorized shutting down) by activating the shutdown password protection feature. (MENU->ADMIN SETTING->OTHERS-> SHUTDOWN PASSWORD)

### 4.    When I playback one record, I cannot hear the audio and I double checked the microphone is correctly connected.

By factory default, the DVR is set to record video only. If audio recording is desired, you can change the setting to Video and Audio (A/V) at MENU->SYSTEM SETTING->IMAGE->MODE.

**5. I want to record at high quality but view over the network at lower quality so I see better movement.**

All MACE Mpeg 4 series DVRs have this feature. Program your DVR's recording speed and quality at MENU->SYSTEM SETTING->IMAGE.

Once connected to the DVR over the network (either through IE browser or the Remote Client software), use the "Multi-Video Preview" option to monitor the cameras. You can modify the preview speed and image quality to suite for your network speed. (On the IE browser: Config->Image, one the Remote Client: DVR Menu->Image)

**6. What does the sound of the buzzer mean when normally starting the machine**

When the machine is started successfully, it will tone out a short ring.

When the HD can not be identified, it would tone out a longer ring.

When communication with the controller panel is abnormal, it sends out a tone of one long ring and two short in series.

**7. Can I control the recording time?**

The recording time unit is per day. Besides schedule recording, there are other recording methods such as motion detection recording, manual recording, external event triggering recording. Confirm that each of the settings is correct.

**8. The indicator light is flashing while recording ?**

Check the external video input signal first. Such phenomena would happen when the input signal is not standard. If it is not the input signal, it must be caused by that the reading speed of the HD is too slow. In this situation, the current HD should be changed.

**9. How does DVR handle the broken (bad) sectors of the harddisk?**

If there is a broken sector of HD and it is not too large, the machine will ignore and jump over it. If the damage area is too large for the DVR to safely store information on it, the system will eliminate this HD and output corresponding information.

**10. What kind of external equipment could be connected to the Recorder?**

It can work together with various matrix units, multiplexers, switchers, quads and PTZ Domes.

## Appendix 3 Hard Disk Installation

### Hard disk installation

There is one 80G hard disk (HD) preinstalled in the Mace DVR, unless you ordered a special configuration. So normally you DO NOT have to go through these steps. This procedure only applies to cases where there is no built-in hard disk in the DVR or additional hard disks need to be installed.

In total, a maximum of 8 large capacity hard disks can be installed inside the machine if a CD burner is not needed. With a CD burner, there can be a total of 5 internal large capacity hard disks. User can decide the number of hard disks according to required image quality, recording time and recording length.

### Installation steps



Dismantle the top cover,  
open the cabinet



Dismantle the HD bracket



Separate the up and down  
part of the bracket



Install HD



Combine the two parts  
of the bracket



Set the master-slave jumper on the same IDE port  
(refer to the clue on the back of the HD)



Fix the HD bracket



Connect the IDE cable the HDD



Plug in power cable



Close the cover and install the  
screws

**Note:** It is not necessary to dismantle the HD bracket if less than 4 HDs are installed

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